THE

physical therapy

REVIEW

Volume 32 - Number 1 January 1952

Physical Therapy in the National Leprosarium — LAUGHLIN

Standing Bed in Poliomyelitis — HARRINGTON

The Standing Bed in Physical Therapy — DOBBIN

Progressive Relaxation in the Treatment of Tuberculosis — REYNOLDS

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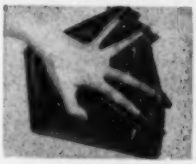

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The Physical Therapy Review

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Physical Therapy in the National Leprosarium

Eva M. Laughlin

The U.S. Marine Hospital (National Leprosarium) at Carville, Louisiana, is operated by the United States Public Health Service. Patients of every age and nationality come here from all over the United States for treatment of Leprosy (sometimes called Hansen's Disease). The majority of the patients are from Louisiana, Texas, Florida, and California. In these states, the disease occurs more frequently. There are approximately four hundred patients at Carville. The turnover is not great—about seventy-five were admitted and seventy discharged in the past year.

Leprosy is a chronic disease with a long incubation period. The current concept of most leprologists is that the disease is acquired after birth from prolonged and close contact with an infected person; that children are more susceptible than adults; that the route of infection is the skin or any open passageway into the body, such as the nose and throat; and that it is only mildly communicable.

Some of the most common symptoms of the disease are: colored patches or nodules on the skin; anesthesia of the hands or feet or in patches over the body, which may be discovered first by receiving a burn that is not felt; paralysis of ulnar, median, or peroneal nerves; epistaxis; nasal obstruction; hoarseness; episodes of fever and erythema nodosum; very painful neuritis—usually in the arms and legs; eye complaints; and loss of eyebrows, lashes, and hair over the body.

There are two main types of leprosy: the lepromatous type which tends to progress and in which large numbers of bacilli are found in the skin, and the tuberculoid type which tends to become arrested spontaneously and in which very few, if any, bacteria are found in the skin.

The bacterium which causes leprosy is the Mycobacterium leprae, or Hansen's bacillus, which closely resembles the bacillus causing tuberculosis. This bacillus was discovered in 1874. The means by which the disease is spread has not been established, nor can it be grown on an artificial media.

During the past nine years the sulfone drugs have been used in place of the chaulmoogra oil which was the most prevalent treatment for a long time. The sulfone drugs are not related to the sulfa drugs. While it is not the purpose of this paper to go into the chemistry or use of these drugs, it may be said that they have been the most beneficial of any treatment tried so far. Although they act very slowly and are not completely effective, they do offer the patients a great deal more

Formerly, Physical Therapist, U.S. Marine Hospital, Carville, La.

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hope than was possible before the sulfones were used. More patients are now being discharged as arrested cases and fewer patients are returning because the disease has become reactivated. However, the number of discharges of arrested cases is still not great.

It is quite possible that in the larger cities, especially in the endemic states, physical therapists might be called upon to treat cases of leprosy, since all states do not have segregation laws. It is not improbable that they may treat cases of leprosy that have been diagnosed as something else. Many of the patients at Carville were misdiagnosed at first, and have been given treatment for some other condition before they were properly diagnosed. Some of the conditions often confused with leprosy are: syphilis, ringworm, acne vulgaris, lupus vulgaris, syringomyelia, Raynaud's disease, and poliomyelitis.

As previously mentioned, leprosy is considered to be only mildly contagious and then only on close and prolonged contact. While a few precautions are advisable, strict isolation is not necessary. From the tuberculoid type, where there are no bacilli found in the skin, there is little danger of contagion. And from arrested cases there is probably no danger of infection. (I wear gloves while massaging, and change uniforms before entering and leaving the department.)

Everyone working with leprosy, and those who have it, wish to bring to the medical profession and the general public, a better understanding of the true nature of the disease so that some of the old stigmas attached to leprosy may be removed. This unwarranted anxiety and alarm constitutes one of the main obstacles in the rehabilitation of patients when they leave the leprosarium.

The material in this paper concerning physical therapy covers the period between September, 1948 and September, 1950, while I was physical therapist at the hospital.

The symptoms for which physical therapy should probably be prescribed are numerous, but due to insufficient staff, only certain ones have received attention in the physical therapy department at Carville. Most of our time has been spent on treatment of the neurological symptoms—paralysis, anesthesia, neuritis, contractures, etc.

In leprosy the peripheral nerves are involved. The most commonly affected are the ulnar, the peroneal, and the median nerve in that order. The radial nerve is rarely affected. The involvement may be in one or all of these nerves and may consist of only a sensory loss resulting in partial or complete anesthesia or it may include motor involvement, and consist of partial or complete paralysis. We have not had sufficient time or staff to treat all the involved hands and feet so we have confined most of our time to the hand cases.

In order to begin treatment on the cases with neurological involvement as early as possible, we give every new patient a manual muscle test of the hands and feet. Where some weakness is found an electrical test is given. In addition, every new patient is examined by a consultant physiatrist, who prescribes treatment. The new patient is advised to let us know when he notices any sign of weakness in his hands or feet. There have been sixty-two patients tested since this procedure was started in January, 1949. Of these, forty-two had no motor involvement and twenty had motor involvement varying from slight to complete of one or all of the ulnar, median, peroneal, or radial nerves. Fourteen of those with involvement received treatment and six did not. In the latter, the paralysis had been present for too long a time to warrant treatment. In addition to the new admissions, the patients who were already here were examined and treatment given where there was a possibility of recovery.

The usual treatment given the hand cases was some form of heat such as infra-red, diathermy, whirlpool, paraffin baths, or galvanic baths. The heat was followed by electrical muscle stimulation and muscle reeducation.

Electrical stimulation employing galvanic or sinusoidal currents was used to treat thirty-two patients. Of these, only five were early cases (within a few months of the onset of paralysis). Two of these early cases improved considerably while the other three improved only slightly or not at all. The other twenty-seven patients had manifested symptoms from one to several years. Many required the use of very high milliamperage, which they could tolerate because of the anesthesia. Taking all these factors into consideration, it is not surprising that there has not been more improvement to report. In seventeen of the patients treated no change in muscle power was noted; eleven showed slight improvement; in two cases there was considerable improvement; and in two cases the paralysis progressed. Sixteen patients had involvement in both hands, and eight in only one hand; three had both feet involved; three had both sides of the face involved; fourteen had only ulnar nerve involvement, none had median nerve involvement alone; eight had both ulnar and median nerves involved; three had peroneal involvement, and one had ulnar, median, radial, peroneal, and facial involvement. All had anesthesia to some degree. The courses of treatment lasted from two weeks to eighteen months, but most of the patients received

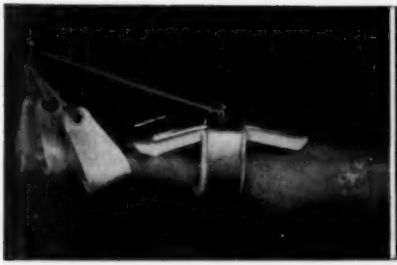

Figure 1. A clip type splint with outrigger attachment and traction on the fingers as viewed from the ulnar side of the hand.

Figure 2. An Oppenheimer cock-up splint for the wrist attached to a clip type splint. This is to prevent flexion of the wrist while the fingers are being extended.

treatment from three to ten months. When there was no immediate improvement some of the patients became discouraged and did not wish to continue treatment. Treatments were discontinued when the patient was discharged from the leprosarium, or when it was felt that the maximum benefit was reached.

So far, only the progress in muscle power has been mentioned. In all patients treated there was improvement of circulation in the parts treated, in the color and texture of the skin, and in the loosening of the stiffness or contractures of the joints. Only slight, if any, improvement in the anesthesia was noted.

On those for whom nothing can be gained by physical therapy measures, splinting *(Figures 1, 2, and 3)* and reconstructive surgery is done. This type of treatment was begun in July, 1949, when a specialist in hand surgery was added to the consultant staff. There is a back log of patients with nerve involvement and severe deformities. So many require a long period of splinting and several operations, that it will be some time before hand surgery can be given to all who need it. Those patients who have the highest possibility of being discharged and of earning a living are, of course, taken first. Probably patients have benefited more from this field of treatment than from any other having to do with the neurological involvement of the disease.

The most typical deformity is the claw-hand due to the paralysis of the intrinsic muscles supplied by the ulnar and median nerves. This deformity is characterized by flexion contractures of the interphalangeal joints of the fingers, hyperextension of the metacarpophalangeal joints, shortening of the web of the thumb, a flexion contracture of the distal phalanx of the thumb, and at times, subluxation of the carpometacarpal joint of the thumb. The next most frequent deformity is due to the loss of function of the ulnar nerve only. This is characterized by the clawing of the ring and little fingers. In addition, occasionally there is also the typical drop-wrist characteristic of radial nerve paralysis.

Hand surgery procedures include: tendon transplants, joint fusions, tenotomies, capsulotomies, and the excision of tight ligaments. Tendon transplant for the loss of the opponens pollicis has been done frequently and is most successful. The transplanting of a sublimis tendon into the first dorsal interosseous muscle has also proved effective. This gives the patient a better pinch between the thumb and index finger by enabling him to abduct the index finger. Transplanting of the extensor indicis proprius and the extensor digiti quinti into the insertions of the interossei and lumbricalis is the operation performed for the purpose of supplying extension to the interphalangeal joints. When the short flexor of the thumb is weak or gone, the metacarpophalangeal joint of the thumb will hy-

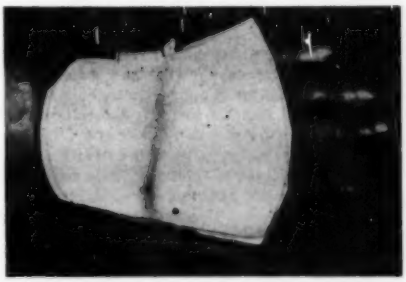

Figure 3. A posterior view of a clip type splint with traction.

perextend when pressure is applied or when a pinch is attempted. A very simple procedure consisting of removal of the vaginal sheath of the flexor pollicis longus allowing this tendon to pull at an angle away from the bone has been done in a few cases with good results.

Surgery is often preceded and/or followed by a period of splinting. Physical therapy plays an important part in the reeducation of the tendon transplants following surgery. This is begun as soon as the dressings are removed, which is usually about three weeks. Treatment in the form of some type of heat, massage, and stretching to loosen tight skin and to increase motion in tight joints, is given to many of the patients before surgery. As most of the patients do not perspire, the skin of the hands and arms is very dry, and sometimes cracks occur in the folds. Paraffin baths are frequently ordered to keep the skin soft between operations. Occupational therapy is prescribed to strengthen the tendon transplants following surgery.

Neuritis presents a very perplexing problem as no satisfactory method of relieving the pain, except temporarily, has yet been found. This pain is usually very severe and persistent and is more noticeable at night. It sometimes lasts intermittently over a period of years. In physical therapy many modalities have been tried. For several years infra-red, diathermy, whirlpool, and contrast baths were used with little success. During the past two years paraffin baths have been prescribed. In some instances these afforded relief. Galvanic baths using the negative pole for its sedative effect have been tried. In the acute cases there is sometimes spectacular relief in one or two treatments, some patients require treatment over a longer period of time, and others are not helped at all. However, this method of treatment seems to be the most successful to date.

The equipment for hydrogalvanic therapy was purchased especially for the treatment of neuritis. However, it has been used in place of preliminary heat for other treatment, and to try to decrease anesthesia. Thirty-six patients have been treated with hydrogalvanism. Four were treated for anesthesia of the hands: two of these improved slightly; two showed no improvement. This modality was used on seven patients in place of preliminary heat for other treatment. It is difficult to say whether or not hydrogalvanism is better than heat for this purpose. Twenty-five were treated for neuritis. Fifteen were relieved partially or completely in from one to forty-five treatments. In ten cases there was no change. One patient received three complete galvanic baths in a tub for treatment of extensive neuralgic pain. This seemed to relieve the pain somewhat, but the patient's general condition was not good and the bath was too strenuous for him. If the milliamperage was turned very high, a rash or tiny burns with considerable itching occurred on the skin which had been immersed in the bath. Approximately twenty milliamperes is the intensity of the current used. Due to the anesthesia, some of the patients felt that they were getting little benefit from the treatment because they could not feel anything.

The paraffin bath has been used as preliminary heat, for pain, for thick, hard skin, to soften dry skin, for swelling and for periostitis. The equipment used in this hospital is thermostatically controlled at 126° F. There is no danger of burning the patients at this temperature. It is felt that paraffin will soften dry skin while treatments using water will cause it to become drier. Some of the patients have begun to perspire on the arms or legs after a series of treatments with paraffin. Some who think they don't perspire can see beads of perspiration on the skin when the paraffin is removed. This seems to help the morale.

When the disease is far advanced trophic ulcers often appear on the soles of the feet. The metatarsal area, where calluses usually form, is the most common site. These ulcers may become very persistent and will heal only after a long period of non-weight-bearing and usually break down as soon as the patient gets on his feet again. At present, due to a limited staff, these are not being treated in the physical therapy department. However, shoes are corrected in order to take the weight off the metatarsal area. These corrections are metatarsal bars on the sole of the shoe located just posterior to the ulcer or callus, and combination (long arch and metatarsal) sponge rubber inserts in the shoe. Either one or both of these may be ordered depending on the condition.

If the ulcers persist, a below-knee amputation may be necessary so that the patient can be ambulatory. Since January, 1949, five patients have had amputations—one was bilateral. Prosthesis adjustment presents many problems, because the stumps are anesthetic and the patient cannot feel areas of pressure or friction. It is a long, difficult process, but all are walking well and two will soon be discharged. (It was impossible for them to be cared for at home when they could not walk and when their dressings required constant attention.) Each of three of these amputees has a foot which is not in good condition so that he will never be able to do much walking; however, he will require less care and will get more exercise.

Before these amputations were done the problems seemed colossal. The hands and feet were

anesthetic, and two of the patients were blind and had absorbed fingers, making it difficult to hold a cane. Also due to the fact that the remaining foot and the stump were anesthetic, it seemed that balance would be very precarious. In spite of all these obstacles every amputee is much better off now than he was before the amputation. The woman who had the bilateral amputation has learned to walk well, has good balance, and can apply her own prostheses although she has ulnar and median nerve paralysis of both hands.

There are many cases of drop-foot due to the peroneal paralysis. The well known spring type drop-foot brace is usually ordered. If this type is not strong enough, a heavier short-leg brace is prescribed. Sometimes an ankle T strap is needed to prevent or correct inversion of the foot. A few posterior tibial transplants have been done to provide a dorsiflexor for the foot.

In the far advanced cases we see severe foot deformities due to paralysis of the muscles and absorption of the bones. Absorption usually begins with the proximal phalanges and the metatarsals. Contrary to common belief, the toes do not drop off. It is a gradual process of absorption that makes them disappear. Special shoes often have to be made for these shortened feet. If the toes become so deformed that they prevent the wearing of a shoe, they are usually amputated.

The bones in the hands are absorbed in some of the far advanced cases. Absorption begins in the distal phalanges. This absorption, in a few cases, has progressed to, and included, some of the carpal bones. Where the sulfone drugs have been used, one rarely sees much absorption.

When a patient has repeated episodes of erythema nodosum, the skin frequently becomes tight as seen in scleroderma. This condition has been somewhat relieved by heat and massage over a long period of time. It may occur on the arms, legs, or face. If it occurs around the elbow or wrist, contractures often result. Tight bands are sometimes formed around the lower half of the leg from impaired circulation to the foot. It is felt that these bands might also respond to heat and massage over a long period of time.

Negative medical galvanism and massage were given to scar tissue on the face, but with little success. The scars had been present for too long. Treatment was given for the cosmetic effect and to overcome the sensation of drawing of the skin, described by the patient as "feeling like a tight mask." This unpleasant sensation was decreased considerably by treatment, and it is felt that satisfactory results might be obtained if treatment were started early.

Fortunately, scarring of the face is not often seen in the newer patient who has received the sulfone drugs.

Another uncomfortable symptom of leprosy is periostitis—usually of the tibia. This condition is treated with whirlpool, paraffin baths, or diathermy with moderately good results.

In addition to the specific symptoms of leprosy to be treated, there are the usual aches and pains, strains and sprains, found in any group of people.

Short wave diathermy and infra-red are being used here for many of the same conditions that they are used for in other physical therapy departments. If an average intensity is used there is no danger of burning.

The nourishing food, comfortable living quarters, rest, and good medical care received by patients at this hospital nearly always bring about a change for the better in their condition before the effects of the drugs are noticeable.

One aspect of the disease which has not been mentioned is the presence of many psychological problems. Due to its crippling effect, its chronicity, and the stigma attached to this disease, there seem to be more of such problems at this institution than one would find in most other hospitals.

CASE STUDIES

Case 1: P. M. is a Mexican male who was admitted from Texas in 1938 with the lepromatous type of leprosy. He had noticed skin lesions two years prior to admission. When he arrived here he had skin lesions plus slight anesthesia along the ulnar side of the forearms and in the legs and feet. His ulnar nerves were enlarged, and there was slight atrophy of the interossei of the right hand. He received chaulmoogra oil until 1945 when he was put on one of the sulfone drugs.

During his stay in this hospital he frequently has had ulnar neuritis in both arms. For this he was usually treated with contrast baths or diathermy. In November, 1948, infra-red, massage, and exercise were applied to the right hand, and in January, 1949, electrical muscle stimulation plus muscle reeducation was started. According to a manual muscle test, the ulnar paralysis was not complete and the muscles reacted to the sinusoidal current. In March, 1949, paraffin baths were begun, as preliminary heat, to both arms. During the summer the patient began to perspire on his arms. He stated that he had not perspired in that area for several years. After October, 1949, galvanic baths were given during episodes of neuritis. This seemed to relieve the pain after one or two treatments.

At first, P. M. had a slight flexion contracture of the little finger. This has been almost completely overcome. The muscle power has improved only slightly although he has had about twenty months of treatment. He has always exercised his hand a great deal, and has a useful hand without contractures. During the treatment with electrical stimulation the atrophy of his hand was not very noticeable. The muscle power did not return and so the stimulation was discontinued and now the atrophy is becoming more marked. He is still receiving galvanic baths for the episodes of neuritis when both of his ulnar nerves become swollen and tender.

Case II: D. S. is a white male, aged 29, who was admitted from another government hospital in February, 1949. He is a native of a state where the disease is not endemic and had no known contact with leprosy. However, while in the service during World War II he was stationed in an endemic state and in the South Pacific area where leprosy is quite prevalent. He has the tuberculoid type of leprosy with peripheral nerve involvement.

In 1945 he developed anesthesia in the right hand. This gradually progressed. In November, 1948, skin lesions appeared on the trunk and face and ulnar paralysis developed in the right hand. At this time he was hospitalized in a government hospital where atrophy of the thenar and hypothenar eminences was noted. On admission to this hospital there were still many skin lesions on the face, arms, hands, and trunk. The nose was congested with much crusting, the right ulnar nerve was enlarged above the elbow, and there was muscle weakness in the right hand.

He was started immediately on paraffin baths, electrical muscle stimulation, and muscle reeducation to his right hand, and continued to receive physical therapy treatment for five of the six months he was in this hospital. At one time during his treatment he had neuritis for about one month. On discharge he had practically normal muscle power, but he still had anesthesia over the ulnar distribution of the hand. The ulnar nerve above the elbow was no longer enlarged. At the same time he was receiving physical therapy, he was taking one of the sulfone drugs and his general condition was improving.

Before his disease was arrested, and at his own request, he left this hospital to go to New York where there are no segregation laws concerning leprosy.

Case III: W. J. is a Chinese male, age 48, with lepromatous leprosy with considerable neural involvement. He was admitted to the leprosarium in 1927. At that time he had some spotty anesthesia over his hands where his lesions were, but there was no evidence of muscle weakness. He remained here ten years and during that time he was treated with infra-red or contrast baths for pain in his hands and feet. He was given chaulmoogra oil during this ten-year period and was discharged as arrested in 1937.

W. J. remained away for ten years and was readmitted in 1947. At this time he again had some skin lesions, there was marked anesthesia from the elbows and knees distalward. He had a large deep trophic ulcer on the sole of one foot. He also had ulnar nerve paralysis of the left hand. There were slight contractures of the fingers and atrophy of the intrinsic muscles of the hands. He also had bilateral drop-foot. The eyes had been involved for some time and vision was impaired.

In September, 1948, whirlpool, massage, and muscle reeducation were started on his hands. After a short period of treatment the patient thought his hands felt a little stronger and that he could feel heat and cold a little better. In January, 1949, electrical stimulation was started and, in March, paraffin baths were substituted for whirlpool. In July of that year the arms began to perspire after paraffin baths. In August the patient was seen by the hand surgeon and clip type splints *(See Figure 3.)* were ordered to allow him to actively extend his fingers by blocking the hyperextension of the metacarpophalangeal joints. Traction was applied to the left thumb, also, to keep it in opposition. In October all physical therapy measures were discontinued as it was felt that he had received the maximum benefit. The patient said he could use his hands better and there seemed to be less atrophy. There were no fixed contractures. Muscle tests did not show much change in muscle power. Apparently he had learned to substitute other muscles. The prescribed splints were worn more or less faithfully. W. J. did not wish to have surgery at this time. In April, 1950 he finally consented to have his hands operated upon. At this time an opponens transplant was done on the left thumb. The dressing was removed in three weeks and paraffin baths, massage and reeducation of the transplant were begun. He learned to use it readily and has had good results from this operation. *(See Figures 4 and 5.)*

The patient continued with occupational therapy and it was found that, when he exerted pressure on the tip of the thumb, the metacarpophalangeal joint would hyperextend due to the weakness of the flexor pollicis brevis. In September an excision of the tendon sheath of the flexor pollicis longus was done, allowing the muscle to pull at a different angle. Results obtained from this opera-

Figure 4. W. J.'s hand as it was before surgery with clawing of the fingers and inability to oppose the thumb.

Figure 5. Opposition of the thumb following the tendon transplant of the sublimis of the ring finger to the thumb on W. J.'s hand.

tion were good, and the patient can now take pressure on the tip of the thumb without hyperextending the metacarpophalangeal joint. *(See Figure 6.)*

More surgery is being contemplated for this patient. The surgeon intends to transplant a flexor sublimis tendon to the first dorsal interosseous to allow abduction of the index finger to give more strength in pinching with the thumb and index finger. He also may transplant the extensor indicis proprius and the extensor digiti quinti to the paralyzed interossei to allow the patient to extend his fingers. When all these operations are performed bilaterally, the patient should have good function in his hands.

No anesthetic, except for a little novocaine used locally, was needed during the operations on W. J., and there was very little pain or stiffness following surgery. There was almost no swelling of his hand. The same, except for the swelling, is true of nearly all the hand cases operated on here. Some of the patients have considerable persistent swelling. Because of the lack of pain, we do not have to worry about getting them to exercise; instead, we have to be certain that they do not exercise the hands too much.

W. J. is wearing bilateral drop-foot braces but is not able to walk much because the trophic ulcer on the sole of his foot, which he had when he was admitted in 1947, is not yet healed.

Case IV: D. H. is a 25-year-old white male who was admitted in 1941 from an endemic state. His first noticeable symptoms had appeared in 1937. He stayed at the leprosarium for a time and then left without a discharge. This patient was in fairly good health and was able to work. He returned in 1945 because he had heard of the sulfone drugs and thought that they might help him.

When he was readmitted in 1945 he had some anesthesia of the left forearm and left lower leg. There was slight atrophy of the small muscles of the hands, but he had no loss of perspiration and no contractures or deformities.

This patient was put on sulfone therapy and was getting along nicely until February, 1948, when he had a marked leprosy reaction. During this reaction he had severe pain in the arms and legs, hypersensitivity of the skin to the point that he could hardly stand the touch of the sheet, high fever, and loss of appetite. He lost weight and several times his condition was listed as critical.

The skin on the dorsum of the hands thickened and became very red, hot, and shiny. His ulnar

Figure 6. Shows resistance being given to the tip of W. J.'s thumb after the removal of the vaginal sheath of the flexor pollicis longus. There is no hyperextension of the metacarpophalangeal joint of the thumb.

Figure 7. These are D. H.'s hands after he had the first reaction and before any surgery was done. Note the dark, shiny skin on the fingers.

nerves became enlarged, and he had neuritis several times. X rays of his hands showed rarefaction of the bones, especially around the edges as though the bones were melting away. There were also periosteal changes and contractures bilaterally.

The author first saw this patient in September, 1948. The prescription received in the physical therapy department was for exercise and stretching of the hands at the bedside. At this time the patient was feeling a little better, although his hands were still very sensitive and he did not wish to be touched. There were claw contractures of the ring and little fingers of the right hand with the metacarpophalangeal joints in hyperextension. On the left hand there were similar contractures of all the fingers. *(See Figure 7.)* The web of the thumb was shortened and tight bilaterally, and there was limitation of motion in the wrists. The skin on the dorsum of the hands was still very tight, thick, and shiny. Not much could be accomplished by exercise and stretching, because there were so many days when the patient could not tolerate the treatment and, when he could, it had to be very gentle.

This reaction lasted until May, 1949 (sixteen months), when he was discharged from the infirmary. At this time he was receiving paraffin baths, massage, exercise, and stretching for his hands, and his joints were becoming less restricted. In June electrical muscle stimulation was tried and continued for about two months. The response was not good. This may have been because the skin was thick and sensitive, and because restricted joints would not permit some of the muscles to fully contract. The nerve involvement may also have affected the electrical response.

In July the hand surgeon saw D. H. and recommended a knuckle-bender splint with traction on the fingers to try to overcome the hyperextension contractures of the metacarpophalangeal joints and the flexion contractures of the fingers. He wore this splint as long as possible, but, after a short time, pressure from the splint would cut off circulation.

Physical therapy was continued with special effort being made to soften the skin on the dorsum of the hands. By September, 1949, the skin was soft enough to permit the hand surgeon to do an excision of the collateral ligaments of the metacarpophalangeal joints of the ring and little fingers of the right hand to allow flexion of these joints. He again wore the knuckle-bender splint, and received physical therapy to increase motion in the fingers which had been operated upon. The result of the operation was satisfactory but he had another severe reaction late in October. His hand was again too sensitive to touch and the joints stiffened. The reaction subsided in December and he was able to tolerate paraffin baths, massage, exercise, and stretching. In February, 1950, the motion in the metacarpophalangeal joints of the right hand was considered to be normal. *(See right hand in Figure 8.)*

In April there was excision of the collateral ligaments of the metacarpophalangeal joint of the index finger of the left hand, but the hyperextension contracture did not improve; the finger extensors were bound down on the dorsum of the hand and would not allow flexion of the fingers. Further surgery must wait until the skin on the back of the hand is in better condition. At that time, the surgeon will release the extensor tendons and excise the collateral ligaments of the other fingers.

The ring and the little fingers of the left hand had severe contractures of the interphalangeal joints, and in July these were fused in a more functional position. *(See left hand in Figure 8.)* Following this operation the patient again had a reaction. It was not quite as severe as the others and lasted about a month.

D. H. has had no physical therapy since August, but he has a job where he uses his hands for a great many things, including dishwashing, and the skin on the dorsum of the left hand continues to improve. The surgeon will soon be able to finish the surgery he has planned.

During the reactions, galvanic baths were given for neuritis in the hands and feet, but the pain was not relieved.

The muscle power in the right hand has improved a great deal since the contractures were released; there is no more pain, and the skin has

Figure 8. These are D. H.'s hands after an excision of the collateral ligaments of the metacarpophalangeal joints of the ring and little fingers of the right hand to overcome the hyperextension contractures of those joints (note that he can completely flex them in this picture), and after the fusion of the proximal interphalangeal joints of the ring and little fingers of the left hand. This was the only way that the severe flexion contractures of these joints could be overcome.

a normal appearance. The patient still has a partial ulnar nerve paralysis in that hand. In the left hand it would appear that there is complete ulnar and partial median nerve paralysis.

The surgeon feels that physical therapy has had much to do with the improvement shown by this patient. No doubt this is true; however, much credit must go to the patient himself who worked hard on his hands, came to the physical therapy department regularly for treatment, and wore his splints conscientiously. Credit must also go to the surgeon, for the patient and the physical therapist could have accomplished little without the surgical treatment.

CONCLUSION

An attempt has been made to give the main characteristics of leprosy, the symptoms treated in the physical therapy department, the modalities used, and the results obtained during the two years in which the author has been at the National Leprosarium. This disease is so chronic, and the benefits of any treatment appear so slowly, that it is very difficult to evaluate the results. However, with early treatment, the prevention of deformities, and the early use of the sulfone drugs, we expect the hand problems to gradually diminish. As the staff increases, more program emphasis will be placed on lower extremity involvement and treatment for cosmetic effect.

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MARCH OF DIMES

FIGHT INFANTILE PARALYSIS

JANUARY 2-31

Standing Bed in Poliomyelitis*

Paul R. Harrington, M.D.

In presenting the subject of a "Standing Bed in Poliomyelitis" it must be realized that there is nothing original in such a mechanism. The principles used to benefit the paralytic patient are merely a combination of treatments to accomplish ends that we already know to be attainable. However, I firmly believe the summation is greater than its component parts. The coordination of several therapeutic factors in poliomyelitis and their results in this type of treatment might be considered an enlightened thought.

In reviewing clinical features of severely paralyzed patients in the subacute and chronic stage of poliomyelitis, we are particularly impressed by the muscular atrophy and the demineralization of the bony structures of the body. The processes which go on behind the pathological changes are many. I wish to emphasize only a few in this paper; namely, loss of calcium and phosphorus stability, vasomotor instability, embarrassment of vascular pool, proprioceptive reflexes and the importance of the internuncial cell theory.

For many years it has been well known that in the immobilization of patients due to fractures, long-term illnesses, and particularly in poliomyelitis, the skeletal system loses a tremendous quantity of calcium. One of the frequent complications of polio in the quadriplegic patient is kidney damage and the formation of renal calculi. Little or no treatment has been directed to the reversal of this process of excessive loss of calcium and phosphorus from the body during this phase of poliomyelitis—except for the Rocking bed. It seems to be an inevitable condition so frequently is it encountered, yet so little is done to prevent its taking place.

The relationship of function and weight bearing to the variations in calcium deposits in the normal and immobilized skeleton is so apparent, that I firmly believe there is an unknown factor in the skeletal system which maintains the calcium within the bone. It is my contention that one of the unknown factors, which is very important, is the functional part the skeletal system plays in motion. When this functional part is inhibited or aborted by the presence of paralysis of the motor mechanism of the skeletal system there is a dynamic change in the prerequisites of the calcium necessary in the bone. This drastic change in the paralytic patient causes a complete upheaval of the calcium metabolism and indirectly the phosphorus metabolism of the body. We know that hypercalcemia, with increased urinary excretion of calcium and phosphorus, may occur as a result of rapid demineralization of the bone, especially in the presence of simultaneously impaired renal function. This has been observed particularly in children during periods of immobilization of the extremities due to fractures or paralysis, as in poliomyelitis. In contrast to hyperparathyroidism, phosphorus is normal or elevated. We also see hypercalcemia, of a mild degree, in conditions in which the CO_2 tension of blood is increased, thereby enhancing its capacity for maintaining calcium in solution.

We are all acquainted with the present theories on the relationship of the mobility of calcium, particularly the diffusible fractions in the unbalanced ionic state of the respiratory case in which the acid-base equilibrium is upset. The important factor displayed by calcium in the intercellular fluid balance is only another of many microchemical conditions which, if held moderately in check, can improve the physiological and biochemical stability of the patient.

The factor of immobilization and non-function causes rapid loss of calcium from the bones involved, whereas a rapid return of calcium deposit to the bony structures follows the simple procedure of weight bearing. This observation has led me to believe that an attempt should be made to have the quadriplegic patient, with as little effort as possible by the patient, acquire a weight bearing status. Why, then, should we not use this unknown factor associated with weight bearing to play its part in maintaining a fairly normal calcium deposit in the skeletal system?

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*Read before the Texas State Pediatric Society, at Baylor Medical School, April 19, 1950.

When a patient is in the quadriplegic state we must consider that his peripheral resistance and venous return is impaired tremendously. When we stand this patient, we have an almost complete collapse of the venous return and thus impairment of cardiac output. Ace bandages are used on the lower extremities to support this system.

In their work in postural changes and vital capacities of the blood, Campbell and Harvey studied normal patients with controllable pressure cuffs on the extremities, and were able to reveal that the extremities are the site of the blood pools of the body. Apparently the abdominal cavity in the reclined or the standing position adds very little to the actual functioning of vital capacity of blood volume in the body. Since extremities are the main site of this large pool, it is very easy to visualize that, with loss of muscle tone, the pool is uncontrollable. This can be corrected to a fair degree by the application of elastic bandages to the extremity before the upright position is assumed. Also, it is not too difficult to visualize that, after the toxic effects of the acute phase of poliomyelitis are over and the myocardium has returned to a fairly sturdy state, a vascular rehabilitation might be instigated to build up the capacity of the heart to carry on its work more efficiently. In putting stress and strain on the vasomotor system of the body a rehabilitation of the vasomotor system might be attempted.

A few years ago, Kabat and Knapp introduced in research circles the Internuncial Cell Theory of Poliomyelitis. Their particular interest was in explaining the muscle spasm mechanism of the acute and subacute phase of polio. Their work revealed several other factors which were worth investigating. It is now relatively accepted that the internuncial cells in the spinal cord are as responsible for many symptoms and signs that we see in poliomyelitis as the actual involvement of the anterior horn cells themselves. In fact, since the work of Bodian of Johns Hopkins in 1947 in which he propounded his cell population theory, it has been shown that the apparent paralysis in an extremity is not necessarily due to the loss of function of the anterior horn cells. The paralysis may very well be due to the involvement of the internuncial cells. It is in the internuncial cells that the "gremlins" of rehabilitation in poliomyelitis (paralytic patients) may exist. It could be that this is the system which creates the so-called alienation phenomena. After hours of work by well trained physical therapists the function of the muscle or muscle group returns and the patient often states, "I knew that I could move that muscle." Patients often have this sense of function months in advance of any clinical recognition of function of the muscle or muscle groups.

Another factor often observed by workers in polio is the "tricking" of the patient into working muscles of various groups. One of the most common is that of whistling, from which the patient will eventually develop return of the function of the diaphragm and intercostal muscles. Their development to a usable state is often brought about by coughing, using the reflex of coughing to bring about vigorous action of the diaphragm. We have all seen patients who, when put on crutches or leg braces, develop strength and return of muscle power in apparently paralyzed heavy postural muscles.

Loofbourrow and Gellhorn in 1948 presented the summary of their studies in the proprioceptive reflex. This study has shown that reflexes of proprioceptive origin result in patterns of muscular coordination identical with those resulting from cortical stimulation. The myotactic reflex arising in a single muscle has been shown to excite not only this muscle and its synergists at the same joint, but associated synergists acting at a neighboring joint as well. It was frequently noted that even greater activity could be evoked in a muscle by impulses arising proprioceptively in other muscles than by an autogenous proprioceptive stimulation. Antagonists frequently show the inhibition expected from reciprocal innervation, also frequently show cocontraction. This is not surprising since fixation of a limb, when it involves the stretching of antigravity muscles, as in supporting the action, leads to simultaneous contraction of flexors and extensors. It is not difficult to visualize the possible use of proprioceptive reflexes in the heavy postural muscles. The blocking of the cortical stimulating drive at the internuncial point may be overcome by the Standing Bed, using the proprioceptive reflex to re-establish the common pathway.

To summarize: Calcium and phosphorus stability are in part dependent upon the use of the skeletal system to carry out its normal activity, particularly that of resisting stress and strain and of supporting the body as a whole. The circulation is definitely impaired in the paralytic individual because of the loss of two factors: one, venous return due to loss of muscle tone and activity; two, presence of an apparent vasomotor instability, which is possibly central in origin.

There is another system affected by polio in the central nervous system which has been realized only recently and that is the internuncial system comprising mainly the pyramidal and extra pyramidal tracts which are subcortical. There are the

proprioceptive reflexes in the rehabilitation phase of the paralytic patient.

In combining all of these factors which are present in polio, we have a definite effect upon the circulation; the proprioceptive reflexes of the body which are not lost in polio; the calcium metabolism; the vasomotor system of the circulation, and the circulation itself. The Standing Bed gives us means by which we can control the position of the patient with no effort on his part. It can be run automatically by the nurse or patient. The safe standing position should not exceed 75 to 80 degrees, however, since the anxiety of insecurity is too great if one exceeds this point of erect position. The reversal status of the bed to assume a modified Trendelenberg position is definitely indicated for actual tidal drainage of the major branches of the respiratory tree. The use of the Rocking Bed appears to support these viewpoints on sustaining a better calcium retention in the bones, assisting respiration and building a stronger and more versatile circulatory vital capacity.

In presenting the "Standing Bed in Poliomyelitis," I have attempted to show reasons for its existence. I believe it improves calcium metabolism by retention, stimulated by the return to as near normal as possible function of the skeletal system in weight bearing. Also, it improves circulatory vital capacity; rehabilitates the vasomotor system by accommodation; and provides tidal drainage of the respiratory tree. In other words, the Standing Bed assists in the rehabilitation of the patient, vascularly, skeletally and muscularly.

The Standing Bed in Physical Therapy

A Preliminary Report

Helen M. Dobbin, B.A.

When the standing bed was introduced into our department several months ago by Dr. Harrington we did not know what to do with it; now we would not know what to do without it. It has become a very useful piece of physical therapy apparatus in the treatment of poliomyelitis. Its obvious possibilities in the treatment of other diseases have not as yet been explored.

At best this is a preliminary report on the standing bed. From day to day we have discovered for ourselves the practical application of the standing bed in administering physical therapy. What we have found out to date can be discussed and illustrated. As stated in Dr. Harrington's paper, the physiological basis for the use of the bed is not so obvious, and can only be evaluated by controlled experiments. Plans are now being made toward these ends, and it is to be hoped that subsequently a satisfactory scientific basis may be established for the use of the bed. It remains to be determined if simple weight bearing will prevent or correct calcium and phosphorus instability and how often and how much standing is required to achieve this. The same may be asked of vasomotor instability and embarrassment of the vascular pool. Can the alienation phenomena be by-passed by stimulation of the proprioceptive reflexes thereby encouraging muscle rehabilitation? Future experiments may give the answer.

Dr. Harrington's description of the bed is as follows: "The bed is made in two sizes. One is a regular hospital bed with the head and foot in adjustable positions which is supported on pillar blocks, slightly eccentric so that 70 degrees may be reached without elevating the front casters. The second bed is a narrow bed on angle iron frames with no adjustable leg or trunk attachments. The bed is raised and lowered either by hand power or motor. The narrow bed is to conserve space in a department and to allow its transportation from one room to another without forty-inch doors. The Standing Bed, as used in the illustrations of this

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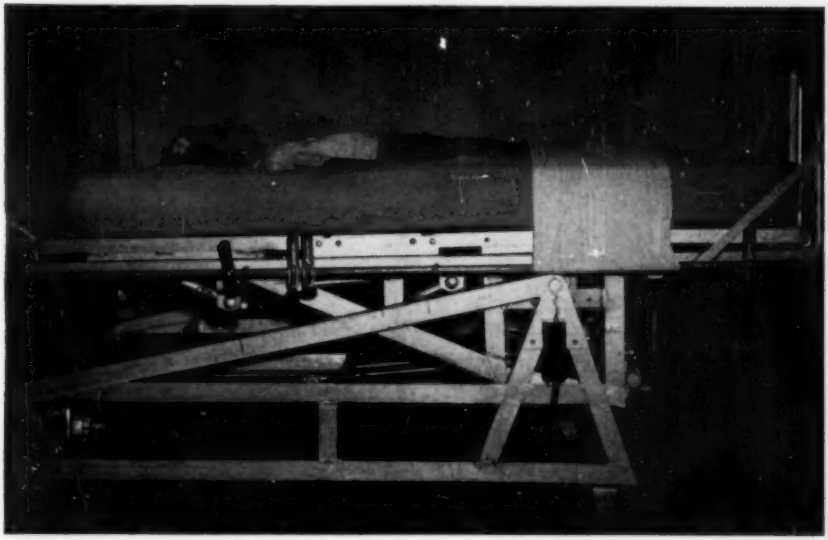

Figure 1.

article, is the original made some three years ago. The bed is quite heavy, approximately 350 pounds; the foot attachment is firmly welded to the bed frame; the range of motion of the bed is from 20 degrees Trendelenburg to 70 degrees standing position; the side rail attachments are adjustable.

The conditions under which we have used the bed should be stated. There are two standing beds for an approximate patient load of thirty to forty. We are mainly a respiratory center although all types of poliomyelitis are admitted. A large percentage of our patients have quadriplegic involvement and vascular instability as well as varying degrees of respiratory difficulty.

The standing bed has been of great practical use in administering physical therapy. It makes the work of the physical therapist easier by placing the patient in certain advantageous positions for exercises and stretching. At the same time it limits the number of attendants or physical therapists necessary. It makes possible the over-all rehabilitation of the major muscle groups of the body with the exception of the upper extremities. It promotes balance and coordination by placing the patient in a functional position. It offers an opportunity for observing circulatory changes.

The advantage of the bed to both patient and physical therapist is demonstrated in Figures 1 and 2. This patient has weak abdominals and cannot come to a sitting position without assistance. However, when the bed is raised to a 40 degree angle as in Figure 2 she can flex the trunk unaided. Thus the patient can be placed at this angle each day to do her exercises unaided. In this way the patient learns to coordinate the abdominal muscles and gets the feeling of how to perform an action, a feeling which is often lost by polio patients. As the abdominal muscles grow stronger, the angle of the bed is decreased until the exercise is done from the horizontal. Pelvic tilting also can be done effectively in the erect position. Where adult patients are concerned, a great deal of time and effort is spared the physical therapist who otherwise would have to lift the patient's trunk to help him up and to support him coming down, a procedure often requiring two people.

Back exercises also can be done very effectievly. The bed is usually raised to a 70 degree angle. The physical therapist stands in front of the patient and supports him with hands on the shoulders. The patient is then brought to a forward position *(See Figure 3.)* from which he tries to

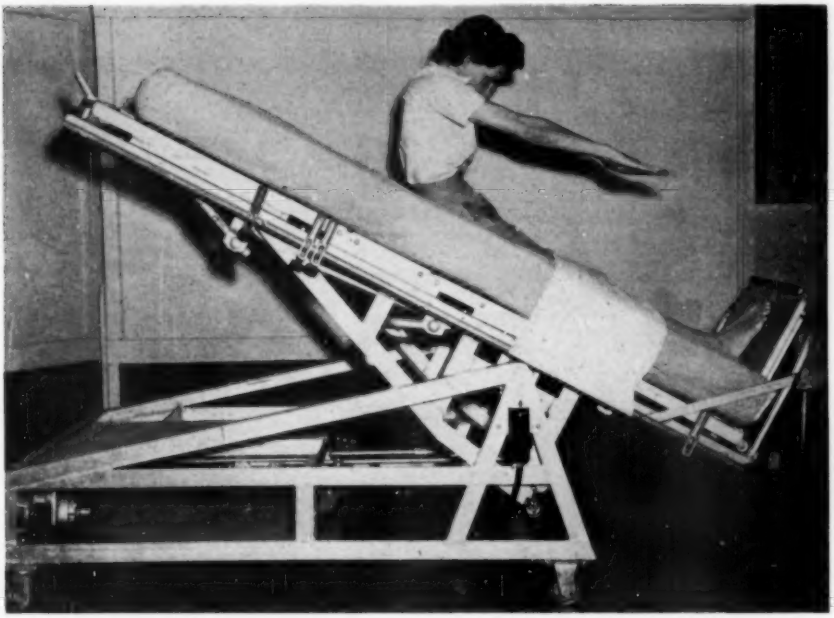

Figure 2.

retrieve himself by extending his back. It is my opinion that this exercise has considerable advantage over table exercises for the back, because (1) the back muscles are called into play naturally when the patient is in an upright position, and (2) even a patient with weak back muscles can take himself through a certain range of motion and be conscious of doing so. With table exercises he very often struggles and squirms and appears to do nothing. Weak neck extensors too, may be handled in somewhat the same manner.

Muscle rehabilitation for the lower extremities can be done to advantage on the standing bed. The erect position is the most natural one for functioning and the proprioceptive reflexes are stimulated. Quadriceps setting seems to come more easily in this position. If the quadriceps are fairly strong the knee binder may be loosened and the knees slightly flexed and then straightened. The gastrocnemius-soleus group may be strengthened by having the patient rise up on his toes. For toe-gripping exercises this is undoubtedly the best position. The quadratus lumborum is in a position to pull against gravity and may be strengthened by pelvic elevation with the standing bed at progressively graduated angles.

The standing bed has been of great assistance in stretching the back, hamstrings, and heel cords. The weight of the patient is used to the advantage of the physical therapist rather than to the disadvantage. For stretching the back and hamstrings the patient is stood up at a 70 degree angle. He then leans forward, supported by the physical therapist if necessary, and tries to touch his toes. To aid in back stretching the chin should be on the chest. The patient can often do his own stretching unassisted.

Heel cords are frequently a problem especially with children. On the standing bed the feet are placed against the footboard, as flat as comfort will allow, and the bed is gradually raised. If the patient becomes uncomfortable, the bed should be stopped periodically so that he may become adjusted to the stress. It may take several days before the patient can tolerate the erect position. When this has been attained further stretching can be

Figure 3.

attempted by placing wedges under the feet. In our department wedges 3, 4, and 5 inches in height have proved very useful. The wedge is demonstrated in Figure 4.

There are certain precautions to be taken in the selection and treatment of the patient on the standing bed. The selection should be made and the specific treatment stated by the physician. The selection involves a proper evaluation of the patient from a respiratory, cardiac, and vascular standpoint. Patients with any of the above involvements should be watched carefully for the first few treatments and the blood pressure, pulse, and respiration should be checked before, during, and after treatment. The feet and legs should be bound with Ace bandages if they become cyanotic and the pulse starts pushing 120. If the abdominal muscles are very weak the patient should have a corset or an abdominal binder. Any tendency toward a scoliosis should be looked into.

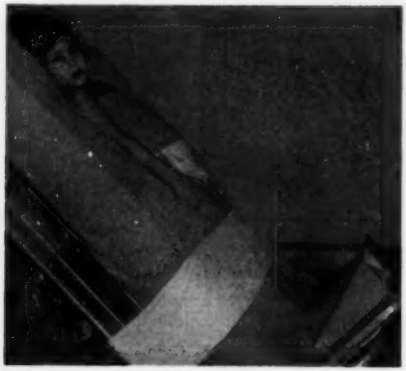

Figure 4.

It might be interesting to indicate certain other types of diseases in which the standing bed could be utilized: in the rehabilitation of cardiac patients, in debilitating long chronic illnesses such as tuberculosis and senility; and in the rehabilitation of fractures involving the lower extremities or back. This is indicated particularly for elderly people who need ambulation without the usual strain of actually walking.

In conclusion, from the physical therapy standpoint, the standing bed has proved very useful in the treatment of poliomyelitis because it places the patient in a position where exercises and stretching can be done to the advantage of the patient and the physical therapist. It stimulates coordination and balance and is, therefore, good preliminary training for eventual ambulation. The physiological basis for the use of the bed is to be subjected to experiment and thereby properly evaluated. The bed in all its aspects is still in the experimental stage. It should be stated that the patients like to stand on the bed, that they enjoy being able to do their exercises unaided (a factor which helps them regain their self-confidence), and that the standing bed is often a source of encouragement to them, acting as a strong impetus toward the desired goal of recovery.

Progressive Relaxation in the Treatment of Tuberculosis*

Norma V. Reynolds

INTRODUCTION

It is generally agreed upon by specialists dealing most directly with tuberculosis that complete bed rest is the greatest contributing factor in the treatment of the disease. It is also the impression of many medical leaders in the field that a scientific program of relaxation is of major importance in order that maximum benefits may result from bed rest.

Patients who are confined to bed are of the opinion they are relaxed merely because they are in bed; yet the numerous positions they assume in bed, e.g., the nervous turning from side to side, restless movements of the arms, legs, hands, and head, prove this assumption to be erroneous and show that the patient is under tension. This nervous tension has a tendency to increase functional activity such as breathing, circulation, and digestion. Relaxation and bed posture are "prophylactic treatments" which are important for any patient, and particularly for the patient with tuberculosis, in order that the functional activities of the body may be maintained as the diseased part is treated.

The purpose of this paper is to describe the procedure of the Progressive Relaxation Program which was started in 1947 in the Veterans Administration Hospital at Wadsworth, Kansas. The relaxation exercises used are those which were given by Mrs. Florence Linduff and her staff at Hines, Illinois and which are also available in "Exercises in Scientific Relaxation" by Jesse Wright, M.D.

PROCEDURE

Before actually beginning the relaxation periods, the patient is well orientated by the ward physician in the importance of rest and the object of the relaxation exercises. The cooperation of the head nurse and her staff is essential so that there will be no interruptions during the rest period. The physical therapist assumes the role of teacher in patient education by instruction and demonstration of exercises to be performed, answering the patient's questions, and encouraging him to cooperate in order to receive maximum benefit. One of the chief complaints of the patient is that if he sleeps during the day it will be impossible for him to sleep at night. It is explained to him that the exercises are not given primarily for sleep, but for the purpose of teaching him to relax. The difference between tension and relaxation is explained, and moving and static tension are demonstrated to him so that he can actually feel tension. This tension is shown by having the patient make a tight fist and slowly flex the elbow to about a 90° angle, then having him DROP the arm to the bed; this is moving tension. Static tension is shown by having him stiffen the arm without moving it—more, and still more, then "let go."

When we initiated the program we had a total of 20 patients who were placed in cubicles on an open ward. These cubicles were made by building portable partitions between each bed. These partitions are 5½ feet high, 8 feet long and the upper portion of the partition is glass. This enables the physical therapist to observe the patient. There are no doors to the cubicles and the space from the top of the partition to the ceiling is open, making it possible for the therapist to give instructions and be heard by each patient.

The patient is taught good bed posture in the horizontal position and is allowed to use one pillow under the head. The room is darkened and all noises eliminated as much as possible. Patients are instructed to keep the eyes closed and to let the arms and legs go heavy, maintaining correct posture. At no time are they made to feel that they must remain awake or alert in order to complete the exercises, or the purpose of the program would be defeated. In order to relax completely, the patients are told to have an attitude of not caring

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whether they succeed or not, so that they will not make a task of learning to relax.

At the beginning of the period the instructions for the exercises are given slowly, more or less in a monotone and in a normal speaking voice. As the exercises progress the voice is lowered and longer periods of time elapse between instructions. Our procedure is as follows.

Arms: Have the patient clench the right fist tightly, bend the right elbow slowly, SLOWLY (until the elbow is bent to a 90° angle), then "let go." This exercise is repeated three times. The same procedure is followed for the left arm.

Legs: Have the patient bend the right knee *slowly*, dragging his foot on the bed; bending the knee until the foot rests flat on the bed, the pull should come from the hip with pressure on the heel. Suggest to the patient that the leg is heavy and that he is tired, very tired. After he has his foot flat on the bed have him extend the leg SLOWLY—he should let it slip slowly down on the heel until the leg is nearly flat, then have him "let go." This exercise should be repeated three times, then repeated for the left leg.

Shoulder and Arm: Have the patient lift the extended right arm very slowly at the shoulder until it is in a perpendicular position, reminding him that the arm is heavy and that he is tired. When the arm reaches the perpendicular position ask him to drop the upper arm (shoulder-elbow), then the lower arm (forearm-hand). He should repeat three times and take the left arm through the same exercises.

Spine: Have the patient roll to the right side dragging the arm and leg as though they were rag dolls (here the physical therapist assists the patient), then tell the patient to "drop back." Repeat two times. Have him roll to the left side in the same manner. By this time the voice of the therapist giving the instructions has lowered considerably, and the length of time between instructions has increased.

Chest and Abdomen: Ask the patient to inhale slowly and quietly through the nose, exhale slowly through the mouth ending in a sigh. Repeat three times.

Head: Have the patient push his head back into the pillow—further and still further, then "let go." Next he should turn his head to the right side slowly, slowly—further and still further—until the patient's chin points well to the right shoulder. Ask him to roll the head back to the center very slowly and when it is almost in a neutral position tell him to "let go." Repeat this exercise for the left side. Each exercise is to be completed three times. By this time the voice is barely audible and about 30 seconds elapse between each instruction.

Face and Eyes: Have patient frown and "let go" three times; raise the brows and "let go" three times; wrinkle the nose and "let go" three times; close the eyes tightly and "let go" three times; roll the eyes upward slowly, three times, downward three times, to the left three times and to the right three times. All exercises are done slowly and after each one the patient is instructed to "let go" so that he completely relaxes.

Tongue and Speech: Have the patient count with the physical therapist slowly, (1) count from 1 to 10 perceptibly but not loudly, (2) count from 1 to 10 in a whisper slowly and end in a sigh, (3) count from 1 to 10 slowly but not perceptibly, ending in a sigh.

We have found that the terms "let go" and "drop it" seem to convey to the patient the idea of what we are trying to accomplish. Other physical therapists may find a different terminology more adequately conveys to the patient the feeling of complete relaxation.

At the close of the period the physical therapist's voice is barely audible and the patients are not aware that the exercises have been completed. One therapist remains with the patients to observe them during the remainder of the two hour period. The actual time consumed in giving the exercises requires one hour.

We had assumed that it would require one month to teach the patients to relax but at the end of the first week 12 patients were asleep before the instructions were finished. At the end of the second week all the patients were able to relax and were actually sleeping. The longest period it has ever taken to teach one person to relax has been three weeks.

As new patients are added to the program they are given the exercises and taught to relax, then moved to the open wards. We now have two wards with 44 patients and, even though all of them do not sleep during the rest hours, they at least assume good bed posture, and relax during the two hour period. It isn't necessary to give the exercises after the patient has learned to relax, but the physical therapist goes to the ward each day during rest period, darkens the room, sees that there are no interruptions and eliminates noise as much as possible. Out of the 44 patients taking relaxation on the two wards an average of 39 patients sleep during the entire two hour period.

SUMMARY

A scientific program of relaxation is necessary in order for the tuberculosis patient, or for any patient who is confined to bed over a prolonged period of time, to obtain maximum benefits from bed rest.

The main purpose of a Progressive Relaxation Program is to teach the patient proper bed posture and how to overcome nervous tension by relaxation. By overcoming nervous tension the functional activities of the body may be maintained as the diseased part is treated exclusively.

After the patient has learned to relax, the exercises with contraction followed by subsequent relaxation become unnecessary and the process of relaxation becomes automatic.

The directions for the exercises as given by the physical therapist produces mental-muscular relaxation and most often results in sleep. Forty-four patients were given the exercises and an average of thirty-nine patients slept during the two hour period.

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(Continued on page 33)

Editorials

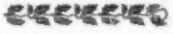
THE EDITORIAL BOARD wishes to take this opportunity to extend its greetings to each member and to wish you a happy and prosperous New Year. It is our hope that 1952 will prove for all a pleasant and worthwhile year both personally and professionally.

Unquestionably most of you will take part in that old custom of making New Year's resolutions. We heartily concur with this practice although we fully realize that the eventual results are sometimes considerably less than anticipated. Nevertheless, the very act of making them has a salutary effect on most of us from the standpoint of self-criticism and evaluation, and there is apt to be some measure of gain from the mental effort involved.

In this respect, we have wondered how many of us ever make an effort to formulate a set of professional resolutions. Surely, each of us can realize a certain amount of benefit from a critical examination of that phase of our lives to which we devote so great a portion of our time. What better opportunity is there for this than the start of a new year?

Such an evaluation and subsequent resolutions seem to us to fall into three main categories. First, we must ascertain how well we have met those responsibilities which are part of our personal behavior. Second, the question arises as to how well we have fulfilled our obligations to our patients and our professional colleagues. And the third phase includes our conduct in relation to our local, state, and national professional organizations.

Examine the record of the past year in each of these categories and honestly evaluate your status. Consider how each responsibility has been accepted, particularly in light of its effects on your professional progress and growth. We feel sure that the final score will be creditable, but that it may point up a few areas worthy of improvement. These should be the bases for your New Year's resolutions. Perhaps you will find a laxity of interest in study, attention to details, attendance at meetings, acceptance of committee responsibility, or failure to put forth your best effort consistently. Whatever the final picture, with the turning of the year honestly resolve to inaugurate a program of professional improvement. Happy New Year!



THE ASSOCIATION again wishes to express its deep appreciation to all those who gave service during this year's polio epidemic. This includes all who accepted assignments to serve wherever needed, those who volunteered in their own community for full or part time work, and regular staff members whose patient load was greatly increased over a normal work day load.

The chapters of the Association through their own polio recruitment service have given immeasurable help. The sum total means an incredible job done, with many patients receiving care who would not have, if so many had not done so much.

It is hoped that the satisfaction of a job well done will compensate in part for the long hours, discouragements, and frustrations in not being able to do all that one felt should be done. The many patients and their families will long be grateful for the physical therapist's skill, patience, and understanding at a time when the world seemed blackest.

THIS FIGHT IS YOURS
JOIN THE MARCH OF DIMES
THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS - FRANKLIN D. ROOSEVELT, FOUNDER
FIGHT INFANTILE PARALYSIS

World Confederation for Physical Therapy

To travel aboard a ship with others bound for the same place and bound by similar professional interests adds zest to any trip. Those of us who travelled on the "M. V. Stockholm" were surprised to learn that we were invited to a cocktail party by Basil O'Connor, President of the International Poliomyelitis Congress, which was to be held within an hour or two after our landing in Copenhagen. We went through customs, took a taxi to the hotel, unpacked enough to doll up a bit, and then were off to the Hotel Angleterre, to meet friends from far and near.

There were seven hundred doctors registered from forty countries, wives of doctors, physical therapists, and delegates—a total of almost one thousand persons at this social gathering. The same number attended several of the social events that followed during the week.

The opening meeting of the Second International Poliomyelitis Congress took place the following morning, September 3rd, at 10 A.M. It was held in the old University of Copenhagen, built in 1479, situated in a quaint cobblestone square. It was an impressive sight to see several hundred faces, keen and alert, from forty countries, occidental and oriental. Queen Ingrid of Denmark was present.

The old mural decorations portrayed the story of the Copenhagen founding fathers. The Rector of the University gave the welcoming address.

Professor Nielo Bohr, the famous scientist, spoke of medical research in the scientific field of physics Basil O'Connor, retiring president of the International Poliomyelitis Congress, presented the Franklin Delano Roosevelt gavel to the incoming president, and musical numbers were presented by the students of the University Choral Society, led by the conductor of the Danish Royal Opera.

Most of the lectures, exhibits, demonstrations, charts, television, etc., were held in a very modern building, the Anatomic Institute of Medicine, and hundreds of persons passed in and out of this building each day. There was a good cafeteria, which was well patronized daily.

The Lord Mayor entertained the members and delegates at a buffet supper in an extravagantly decorated City Hall. The floral decorations were really "out of this world," and the refreshments were delectable, fit for a gourmet of any nationality.

On September 5th the Danish Medical Association and the Danish National Association for Infantile Paralysis held a reception at the Domis Medica. On September 7th the Danish Physical Therapists invited the members of the International Congress to a splendid luncheon. The tables were artistically decorated and the gathering proved to be a very happy one. Delegates from the various nations spoke in an informal and friendly way, and there was much good feeling in evidence throughout.

The most lavish entertainment of the week was by invitation of the International Poliomyelitis Congress. This was held in the Wivex Hotel. There was an orchestra of twelve pieces and toasts were given to the King and Queen. Three kinds of wine were served. The table decorations, plates, glasses and menu cards were works of art. The color scheme used throughout was Copenhagen blue with pink floral decorations. The courses of soup, fish, and filet mignon were of the finest, but the "piece de resistance" was the dessert! Lights were lowered and the hundred or so waiters marched to the accompaniment of soft music along the aisles between the tables, each balancing high overhead on his right hand a large metal platter upon which was a six- or seven-inch cake of ice that had been hollowed underneath to accommodate a small, colored light. Above each of the cakes was a large letter of ice. These letters formed the words "International Poliomyelitis Congress" repeated over and over as the waiters passed through the room. Everyone was served delicious ice cream from the illuminated platter. Coffee was then served, and the orchestra played for dancing until the early hours.

There were seven different nationalities represented at the table where I was seated. Several speakers were presented between the courses of the dinner.

So ended five days of professional highlights in the interest of worldwide scientific advancement in poliomyelitis and a social highlight that participants will long remember. The Danish were extremely generous in their hospitality.

However, the highlight of greatest importance to the two hundred physical therapists who attended the two-day meeting was September 8th, the day the World Federation for Physical Therapy was born.

Our own Mildred Elson was unanimously elected to be the first President of the Federation, an honor due our Executive Director who has worked so hard and with such great vision. The member nations of the Federation are: New Zealand, Australia, Denmark, Sweden, Germany, United States, Canada, Union of South Africa, Norway, Finland and Great Britain. The International Provisional Committee has been working for this merger for several years.

This Provisional Committee had prepared the Articles of Association necessary for the founding of a world federation in London in 1948 and in Paris in 1950. On September 8th an attorney was present to insure the correct legal procedure and everything went smoothly until the clause, "member organization," was reached. A controversy ensued and a vote was taken. Several Belgian delegates present strongly objected to a group in their country who had made application for membership. Belgium was one of a bloc of five nations, and Monsieur Nicolle as spokesman for this bloc withdrew the application of the five-nation bloc from the Federation.

Miss Elson handled the withdrawal with great tact. She accepted with regret the resignation of the bloc and hoped that the present difficulties would be straightened out so that the individual nations would soon be ready to join the Federation. Countries comprising the five-nation bloc were France, Belgium, Luxembourg, Spain and Argentina.

The gratitude of the physical therapists in all the countries now enjoying membership in "The Federation" goes to the Provisional Committee, who worked so faithfully and untiringly to accomplish this world organization of physical therapy.

MARY MCMILLAN

American Physical Therapy Association Delegate to the World Confederation for Physical Therapy

Association Activities

The Director Reports:

During the month of January, the National Foundation conducts its annual March of Dimes. Physical therapists have an intimate knowledge of the great work of the Foundation in providing medical care, including physical therapy, for all polios. For the past four years, the incidence has been extremely high and has strained the resources of the Foundation. The total number of cases for the calendar year of 1951 through the week of November 11, 1951 was 25,567. Last year for the same period, it was 28,908, and the average for 1946 to 1950 was 24,923. Polios do not recover in any single calendar year, and each year the number of residuals mounts.

We know what this means in physical therapy manpower. There simply are not enough to do the job. In addition to physical therapy, the polio needs hospitalization, medical nursing care, braces, special shoes, special assistive apparatus, and wheel chairs.

The National Foundation, since its inception, has made a unique contribution to medical care in the United States. It is a voluntary organization which allows all of us the opportunity to support its broad program. One of its principle functions is to provide for direct medical care to the polio patient. This is a tangible. Of equal importance, but not so tangible, has been the long range programs in research and education. Let us review it briefly as it has affected physical therapy.

It was recognized early that to give adequate after-care to the polio patient more physical therapists would be needed. The scholarship program was, therefore, inaugurated, and to date over 1,600 have received financial assistance. Schools of physical therapy have received grants for development and enlargement of training programs, including the purchase of more teaching equipment. Teaching fellowships were offered to increase the number of instructors; research projects in technics were financed. Your Association received direct benefit since it was recognized that strong professional organizations would support and give the necessary guidance to plans to increase personnel, improve instruction, and thus strengthen treatment programs throughout the country. Grants to the Association were given first, for an executive secretary (after two years, the Association assumed that responsibility), and, later, for a field secretary to aid in the coordination of chapter and national activities. It then became apparent that support of education was of greater importance. Today, two important divisions of your Association are supported by grants from the National Foundation: namely, the educational services, and polio recruitment.

I am going to review briefly for you some of the activities of our Educational and Polio Consultants for the past six months. Miss Moore has visited six approved schools and three prospective schools in six states. She has developed more detailed guidance material for new schools to augment the Organizational Guide for Physical Therapy Schools, and is currently working on a curriculum guide. She has been an active participant in the student selection research program, and has maintained liaison with the schools via monthly bulletins. Educational material such as Guide to Prospective Students, Employment Opportunities, School Information Briefs, the List of Approved Schools has been revised and kept up to date. Over 44,000 pieces of informational material for interesting prospective students have been sent from the office in the past six months. The brochure, "Is This the Door to Your Future?" is financed by the Foundation, as was the poster.

Personal interviews with parents, prospective students, graduate physical therapists, and guidance by correspondence is a day in and day out affair. Miss Moore has acted as coordinator of educational activities, meets and corresponds with the Chairman of the Committee on Education and Chairman of the School Section at regular intervals. This is a fundamental service from which every member benefits, and through which the profession is developed, and it is supported in its entirety by the National Foundation.

The Polio Consultants, Miss Blair and Miss Whittemore, have a maximum travel schedule during the summer and early fall months. In the past six months, consultation services have been given in seven states and sixty-one cities and towns within these states. One hundred and one facilities were visited. In addition to the hundred and forty-six physical therapists in those hospitals or agencies visited, discussions were held with hospital and agency administrators, nurses, social workers, and National Foundation representatives. Much of this was done in July, August, September, and October. This concentrated service was necessary because of the high incidence of polio and the shortage of physical therapists. Plans had to be worked out for outpatient services in the hospitals, in the home, and through itinerant clinics. In each area, the problem differs and requires realistic planning for follow-up through coordination and maximum utilization of community resources. In addition to field work, the recruitment of physical therapists requires many hours of work—telephoning, writing, wiring, and personal interviews—for many are called but few are available. It is a real rationing job as well as a selective placement procedure. A total of fifty-five physical therapists has been recruited this polio season for services in thirty-three hospitals or agencies.

Concurrent with recruitment and field consultation services is the development and distribution of guidance material based on actual needs observed in the field for therapists and employing agencies.

Many physical therapists will be asked, "What does the Foundation do?" Here are some of the answers as related to your own field, which is just a segment of the total program. Your interpretation of the program to others will make it possible for this year's polio to continue with treatment, and next year's polio to have his chance for maximum recovery, through the generous response of all of us, our friends and neighbors, to the March of Dimes.

—MILDRED ELSON
Executive Director

Semi-Annual Executive Committee Meeting

A complete summary of the business transacted by the Executive Committee at the semi-annual meeting held in New York on November 29th and 30th and December 1st will be sent to all chapters early in the spring of 1952, together with the agenda for the House of Delegates' meetings.

Seven members of the Executive Committee, the chairmen of the School Section and six standing committees, and all members of the professional staff of the National office were present.

Annual Conferences

The program for the 1952 conference was discussed and approved. The date for the 1953 conference to be held in Dallas was set for the week of June 14. It was agreed that selection of the site of the 1954 conference must be by a mail vote of delegates prior to the 1952 conference.

American Registry of Physical Therapists

Word has been received that the Board of Registry of the American Registry of Physical Therapists amended the bylaws of the Registry to provide that the Board of Registry is to consist of nine members, two members of whom are to be "designated by the American Physical Therapy Association and to serve during the pleasure of that organization." This must be authorized by amendment to the constitution of the American Congress of Physical Medicine in 1952. In the interim the American Physical Therapy Association has been invited to appoint two members to serve as members of the Registry Board. The Executive Committee appointed two members for a two-year period whose names will be announced following the acceptance of such appointment.

Foreign Trained Physical Therapists

There was discussion regarding a membership plan for foreign-trained physical therapists. Investigation and evaluation of training is to be continued to provide for more inclusive recognition of those trained in foreign countries.

Personnel Policies

In view of the changing economic picture, it was decided to revise the personnel policies recommended to employers by the American Physical Therapy Association.

Recruitment

Shortage of personnel for all fields is a current problem. The shortage of physical therapists is our immediate problem and is of grave importance. In view of the more than one hundred vacancies existing in physical therapy classes enrolled to graduate in 1952, it was recognized that our recruitment plans must be accelerated and intensified. Considerable time was spent in discussing plans for our continuing recruitment campaign, and every member is to be urged to take part.

Civil Defense

Chapter participation in civil defense planning was reported and there was agreement that chapters must be urged to present the qualifications for service by physical therapists in the civil defense program.

Physical Therapy Review

The *Review* reports a substantial gain in revenue from advertising during the first six months of the fiscal year.

Carol Vance was appointed as Managing Editor of the *Review*. Shirlee Stern was appointed to the position of Assistant Business Manager.

A cumulative index of the *Review* for the past ten years is in preparation.

National Office

Educational Consultant: Margaret Moore has resigned as Educational Consultant, effective March 15th, 1952, to accept a position at the University Hospital of the University of North Carolina Medical School. Consideration was given to the appointment of a successor. It is hoped that this appointment will be made before Miss Moore leaves.

A curriculum guide for schools of physical therapy has been started, and plans were discussed for its completion.

Polio Recruitment Service

A total of 59 physical therapists have been recruited to work in poliomyelitis epidemic areas in 19 states, in 33 hospitals or agencies. On December 1st there were 40 still on duty.

Chapters

The increase in contacts with chapters is most encouraging and the improved cooperation and increasing activities of chapters were reported. It was voted to approve requests to dissolve the Carolina Chapter to form North Carolina and South Carolina Chapters.

Directory

A membership directory is now being compiled and should be available by the first of the year.

Placement Service Report:
May 1, 1951 through October 31, 1951

Positions Filled	138	
Inactive Removed	17	
Total		155
Available Positions on file:		
Domestic	236	
Foreign	6	
Pending receipt of Form-5	42	
Total		284
Physical Therapists active on Placement Service:		20

Membership Report:
May 1, 1951 through October 31, 1951

New Members:		
Active	333	
Associate	5	338
Foreign Trained:	1	1
Reinstatements:		
Active	21	
Inactive	6	
Associate	1	28
Resignations:		
Active	16	
Inactive	10	
Associate	1	27
Deceased:		
Active	3	
Inactive	1	4
Active		
Coralynn Davis		
George Kroupsky		
Paul Salisbury		
Inactive		
Jean Humes		
Dropped for Non-Payment of Dues:		
Active	131	
Inactive	45	
Associate	1	177
Student Members (as of October 31, 1951)		390

Conference 1952

Ye Bellevue-Stratford
Philadelphia, Pennsylvania
June 23—28, 1952

The Philadelphia Gazette

Vol. 1

Courteous Reader: It hath been lately rumored through our Town that a Wonderous and Fair Event is planned which will take place in June. From the many States, happily now united, and from the Western Lands will People come to sit in Conference assembled and talk of Many Things of Common Interest. The citizens of Penn's "greene countrie Towne" would bid them Welcome and present, with Poor Richard's help, a Catalogue of Facts and Information to acquaint them with the Wonders and the Natural Beauties of our City. Join with us, then to see what Sights may still delight the Eye in this Town called Philadelphia.

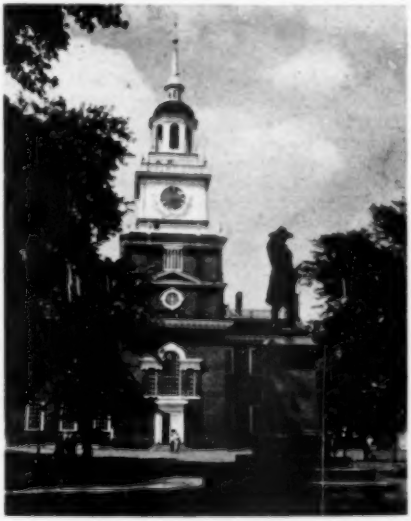
It is Expedient, or so Poor Richard says, that such a Town should start at the Old State House, now called Independence Hall. There the Visitor may see and walk among those Many Treasures of our Nation's Birth such as those Documents of Independence and Self-Rule, and look upon the Bell that lately did announce our Liberty. Within the Square surrounding one can see the thirteen tall Red Oaks which represent the thirteen Colonies and round about stand gas-lit Lamps, one for each Signer of the Declaration of Independence.

Near by the Visitor may seek the Narrow Passage leading into Carpenter's Hall, a Prime Example of the Builder's Art once used to house the early Continental Congress then Assembled to debate the Questions of Taxation and Free Press. Here did the fiery Patrick Henry of Virginia first raise his Voice with Talk of Independence which did shortly sweep across the Colonies.

As Poor Richard says, these few surrounding Squares contain a Host of famous Landmarks, large and small, and respectfully urges the Visitor to look with Care lest he should miss such Sights as Whalebone Alley with its Ancient Cobbles, the stately Bank of the United States which now is almost Two Hundred Years in Age, the Powel House of Classic Design, and Old St. Joseph's hidden deep in Willing's Alley where it first was set to Escape the Public Eye.

And now, Gentle Reader, we would lead the Way to a tiny House still standing as it did when Mistress Betsy Ross, with Needle and Petticoat, plied her Trade to fashion for her Friends a Banner for the Cause. And we will also find close in Pewter Platter Alley the Site where Franklin and his Friends did gather to discuss all manner of

(Please turn to page 33)



Courtesy of the Chamber of Commerce, Philadelphia.

Independence Hall

Membership News

Florence L. Kenney, member of the American Physical Therapy Association since 1929, and president of the Massachusetts Chapter from 1938 to 1940, died in Boston, October 11, 1951.

For many years Miss Kenney worked with the Harvard Infantile Paralysis Commission and the Children's Hospital Polio Clinic. During the past few years she was associated with a medical group in Brookline.

Marriages

Lt. Marion Dooley of San Diego, Calif., now Lt. Marion D. Bates, San Diego, Calif.
Lt. Pauline Bargion of Oceanside, Calif., now Lt. Pauline B. Brake, Oceanside, Calif.
Betty Jane Stotter of Cleveland Heights, Ohio, to Robert H. Goldsmith, Toledo, Ohio
Goldie Grear of Denver, Colo., now Mrs. Goldie G. Harding, Los Angeles, Calif.
Monica Wallace of Providence, R. I., now Mrs. Monica W. Hunnicutt, Providence, R. I.
Marye Lantz of Sarasota, Fla., now Mrs. Marye L. Johnson, Wagener, S. C.
Nancy E. Green of Leominster, Mass., to Vincent S. Mekeiseck, Arlington, Va.
Joan M. Young of Wausau, Wis., now Mrs. Joan Y. Mills, Kansas City, Mo.
Imogene Lineburg of New Market, Va., now Mrs. Imogene L. Poland, New Market, Va.
Lt. Joyce C. Barker of Maxwell Air Force Base, Ala., now Lt. Joyce B. Robertson, Japan
Ethel E. Walt of Detroit, Mich., now Mrs. Ethel W. Sedlet, Milwaukee, Wis.
Helen Bezilla of Pittsburgh, Pa., to William J. Supina, Paterson, N. J.
Ruth Loomis of Ft. Worth, Texas, now Mrs. Ruth L. Taylor, Ft. Worth, Texas

School News

Bouve-Boston School of Physical Education

On the evening of October 29th, an impressive service was held to dedicate the new building of the Bouve-Boston School of Physical Education on the Tufts College campus. The Honorable Leverett Saltonstall, Senator from Massachusetts, delivered the main address.

Miss Marjorie Bouve, co-founder of the school which opened in 1913, restated the purpose of the school and said, "May this school ever cherish the belief that its graduates in both fields should be dedicated to careers of service in which they profoundly influence the health, happiness, and character of those with whom they come into contact."

Orthopaedic Hospital To Give Poliomyelitis Courses

Orthopaedic Hospital, Los Angeles, will present three one-week courses during 1952 in Poliomyelitis, aided by a grant from the National Foundation for Infantile Paralysis. Courses are scheduled for February 11-15, May 19-23, and October (dates to be announced).

Classes for qualified physical therapists will be given in conjunction with those for physicians, nurses, and occupational therapists, and will include an over-all review of all phases of treatment with emphasis on coordination of services.

Requests for further information and enrollment in the February 11-15 course should be directed as soon as possible to Susan G. Roen, Director of Physical Therapy, 2400 South Flower Street, Los Angeles, California.

New Student Members

Albany Hospital

Marcia Hilfrank — Margot L. Meyer

Boston University

College of Physical Education for Women, Sargent

Ruth E. Bell — Dolores Perregaux
Rosemary A. Cotton — Christie A. Peterson
Pauline E. Des Rochers — Barbara I. Russell
Sally K. Dodge — Susan Smyser
Ruth L. Hayward — Joan K. Sullivan
Alice E. Hazlehurst — Alice W. Terrill
Eleanor C. Hoffmann — Elsie M. Wellington
Claire F. McCarthy — Frances M. Williams
Dorothy L. Mozian — Marilyn Williams
Barbara L. Wolsey

Bouve-Boston School of Physical Education

Grace Arakawa — Sally Lovejoy
Imogene M. Bragg — Grace O. Lyttle
Lydia Benson — Nancy Sickles
Nancy Ann Donnelly — Nancy J. Smith
Anne V. Fayan — Jeanne T. Walsh
Joyce M. Jewett — Kim Ling Wan

Cleveland Clinic

Norma Bell — Elizabeth Ann McBane
Clovis S. Daily — Elizabeth Murphy
Patricia A. Danford — Marian J. Myers
Mary Louise Freehling — Yuki Nakasone
Robert S. Gourley — John Nebera
Madeline Hoch — Emilie C. Riley
Margaret Holman — Janice Roberts
Donald Humberger — Antoinette Spring
William Kelley — Betty Ulrich

Columbia University

Joan M. Featherman — Jane A. Rosenthal
Wynona A. Goddard — George C. Supple, Jr.
Henry Mucci

D. T. Watson School of Physiatrics

Charles Angelici	Petronella Karaveckas
Shirley Brown	Doris Kopler
Carmen D. Callazo	Louis Kruse
Doris J. Darkey	Jean Kuhns
Elizabeth Graham	Gloria Lange
Victoria Greenberg	Vera Lazorchak
Hazel Grime	Richard McDougall
Mary Helpy	JoAnn McNally
James Ireland	James Pears
Margaret Jervis	Marjorie Stephenson
Clifford Kern	Joyce Willard

Medical College of Virginia

Barbara Adams	Mary E. MacDonald
Martin P. Asarnow	Dorothy Mandragos
Albert J. Berberian	Mary K. Martin
James H. Braatz	Donald K. McKenzie
Via V. Clifton	Alexander C. H. Melnicki
Evan V. Davies	Elizabeth R. Mende
Albert DuLaney	Ramona Mickelborough
Nancy C. Flowers	Anne B. Miller
Martha B. Garrison	Margaret O. Molnar
Ruth Golson	Yvette E. Nelson
Doff Daniel Griffith	Patricia Nilson
Henderson Andrew Johnson	Dudley Prince
Judith E. Johnston	Eloise Rhodes
Roscoe F. Kearse	Margaret Ann Ropes
Richard B. Kemp	Sara Watts Sneed
Kaye Bailey Lenn	William E. Tucker, Jr.
Mary Ann Levesque	Marjorie L. Vaughan

University of Colorado

Wayne F. Allen	Mary T. Gordinier
Ruth Lee Bretz	Herma Helene James
Nancy Collier	Leonard V. Keith
Leone D. Cornell	Elmer J. Kortemeyer, Jr.
Carla J. Floyd	Joy G. Kortemeyer
Robert W. Gillespie	Evelyn J. Sawyer
Helen V. Skowlund	

University of Iowa

Norman E. Miller

University of Pennsylvania

Bessie Eary	Sallie B. Iliff

University of Wisconsin

Marilyn J. Atkinson	Mary M. Kuhnert
Bonnie Lou Below	Francis J. Sladky
Carol Blomgren	Marilyn Ward
Samuel Chelemsky	Glen L. Wheeler
Nancy Hoffland	Mary K. Wood

New Schools

Several new Physical Therapy Schools are being planned to meet standards as established by the Council on Medical Education and Hospitals of the American Medical Association. One has already begun to function and the others hope to accept students during 1952 if present arrangements are completed.

The University of Michigan, Ann Arbor, is establishing a curriculum directed by Dr. James Rae, Medical Director, of the Department of Physical Medicine of the University Hospital. Miss Virginia Wilson (Brooke General Hospital—1945) has been appointed Technical Director.

The University of Connecticut in Storrs in conjunction with the Hartford Hospital is also organizing a four year degree program with provisions for a certificate course. Dr. John Allen of the Hartford Hospital Department of Physical Medicine is to be Medical Director and Miss Frances Tappan (Walter Reed General Hospital—1944) has joined the University faculty as Technical Director.

Dr. Nathan Polmer was recently appointed Medical Director of the proposed School of Physical Therapy at Charity Hospital in New Orleans. The school will be assisted by the staffs of both the Medical Schools of Louisiana State University and Tulane University which are affiliated with Charity Hospital. Other staff appointments have not been made. Dr. Polmer is currently associated with the Physical Medicine Service of Louisiana State University and the Touro Infirmary in New Orleans.

A certificate program has been activated at Baylor University Hospital in Dallas, Texas under the Medical Direction of Dr. Edward M. Krusen, Jr. of the Physical Medicine Department. Miss Peggy Dyer, Stanford 1949, is the Technical Director for the school which currently has enrolled three students. The school year began October 1, 1951. Two years of college level education with appropriate sciences or graduation from a school of nursing are required for admission. Two classes a year are being planned. The school is expected to apply to the American Medical Association for approval. Other schools are being planned throughout the country.

Staff Changes

Miss Josephine Buca became affiliated with the teaching staff of the Baruch Center of Physical Medicine and Rehabilitation at the Medical College of Virginia in the fall of 1951. Miss Buca is a 1947 physical therapy graduate from the University of Texas in Galveston.

On November 1st, Miss Mary Elizabeth Kolb joined the teaching staff of the University of Pennsylvania School of Auxiliary Medical Services. She has returned to her home state after serving as Technical Director at the Hermann Hospital School in Houston for three years. No replacement has been named for the Texas position.

Chapter Activities

Illinois Chapter

On Wednesday evening, October 3, the Illinois Chapter of the American Physical Therapy Association met at Illinois Research Hospital for a buffet supper and demonstration meeting. Physical therapists from various departments throughout the city shared with their fellow members, gadgets and devices improvised by themselves, their patients, and friends as aids to procedures for treating polio, industrial accidents, and surgery.

Mary Haskell, Assistant Executive Director, highlighted the meeting with a word of encouragement to the members of the Illinois Chapter, and gave a resume of activities in the National Office during the summer and fall.

The November 4th luncheon meeting featured an organized panel for the discussion of a prevalent problem—Shoulder Disabilities. Under the guidance of Dr. Joseph Koczur (physiatrist), the subject was discussed by Dr. Albin Jahns (orthopedist), Dr. Reuben Balagot (anesthesiologist), Margaret Farrell (occupational therapist), and Helen Shaber (physical therapist). The members of the panel provided slides, X rays, diagrams, and orthopedic equipment to illustrate their ideas. Following the panel, the meeting was open for questions and discussion from the floor.

Connecticut

At the October meeting of the chapter, Dr. John C. Allen described plans for the new school of physical therapy at the University of Connecticut. Dr. Allen is to be the medical director, and Miss Frances Tappan reported on December 1st as technical director. It is expected that students will be accepted for entrance in the fall of 1952.

"Nutmeg News" is the name of the chapter newsletter. The fall-winter edition, 1951, includes a complete list of chapter officers, committee chairmen and advisors, as well as committee reports, tips on parliamentary procedure, and news notes.

Florida

The Chapter presented a Seminar on Rehabilitation in Palm Beach, on October 26th and 27th. Speakers on the program included Alfred R. Shands, M.D., of the Nemours Foundation, Wilmington, Delaware; Donald A Covalt, M.D., Institute of Physical Medicine, New York University-Bellevue Medical Center; Mr. Dodd Pace, State Supervisor, Vocational Rehabilitation, State of Florida Department of Education; Thomas Gucker, 3rd, M.D., Georgia Warm Springs Foundation.

Group workshops were held on Cerebral Palsy, Poliomyelitis and Rehabilitation. Harriet Gillette, M.D., and Mildred Elson participated in the workshops. Members of the allied professions were invited guests at all meetings.

This seminar was made possible by the financial support of the Nemours Foundation. Chapter members and guests were most enthusiastic about the success and value of the seminar.

Massachusetts

The public relations committee of the Massachusetts Chapter is promoting the sale of APTA sleeve emblems to all chapter members. The regular chapter newsletter points out opportunities to develop public relations by wearing emblems and "editing" news items, which include reports of job accomplishments. The March program is being planned to include speakers from allied organizations. The program for December was planned by student members of the chapter.

Letters requesting application forms for the registration of physical therapists in Massachusetts should be addressed to the Board of Registration in Medicine, State House, Room 413F, Boston, Mass., such requests to be made during the month of January 1952. No fees are to be enclosed in this initial correspondence.

Minnesota

"Spark Gaps" reports on chapter and membership news and tells of a class for pregnant mothers conducted in Maternity Hospital, Minneapolis, by Dorothy Mitchell, chapter member.

Nebraska

"The Stimulator," newsletter of the Nebraska Chapter, reports as follows: "The Chapter had an Educational Seminar on December 1st in Lincoln. Physical therapists, physicians, a speech therapist, and nutritionist, all had a part in the program."

At the November meeting there was a round table discussion on interprofessional relations. The chapter chairman of interprofessional relations presided, and the following professions were represented: nursing, medical social work, and occupational therapy. All members of the allied professions were invited to attend.

Corrections

On page 485 of the November *Review* an error was made in the School News. Mrs. Mary J. Dodge is the newly appointed Technical Director, Childrens Hospital Society, Los Angeles.

Miriam Jacobs has assisted in the poliomyelitis research project at Provo, Utah, not Marian Jacobs as erroneously reported.

General News

Dr. Charles F. McKhann Appointed Acting Medical Director for United Cerebral Palsy

Dr. Charles F. McKhann, of Cleveland, who is widely known for his research and public health work in the field of handicapped children, has been appointed to the newly created position of Acting Medical Director for United Cerebral Palsy.

Dr. McKhann, who started his new duties October 1st, will coordinate medical activities in the united attack on cerebral palsy in cooperation with the organization's two volunteer medical bodies. These are the Research Council, headed by Dr. Sidney Farber, of Children's Medical Center and Harvard Medical School, Boston, and the Medical Advisory Committee of which Dr. Winthrop M. Phelps, director of Children's Rehabilitation Institute, of Cockeysville, Md., is chairman. Dr. McKhann is a member of both groups.

Known throughout the nation as a lecturer, teacher, and author of numerous papers, Dr. McKhann is a consultant in pediatrics to the Surgeon General of the U.S. Army, and president of the American Board of Pediatrics, Philadelphia. He is also president of the Medical and Chemical Associates Research Laboratories in Cleveland, which is seeking and testing drugs effective in cerebral palsy and convulsive disorders.

Dr. McKhann was a teacher at the Harvard Medical School and Harvard School of Public Health for 17 years. He was sent by the Rockefeller Foundation to the Orient in 1935-36, serving as visiting professor at Peiping Union Medical College, and inspecting facilities for medical research in India and Burma. In 1940 he accepted the professorship in Child Health at the University of Michigan School of Public Health at Ann Arbor.

During World War II he served on the Board of Consultants in Epidemiology to the Secretary of War, and from 1943 to 1945 also was in charge of research and development as assistant to the president of Parke, Davis & Co., Detroit.

A member of the American Pediatric Society and the Academy of Pediatrics, Dr. McKhann is a former president of the Society of Pediatric Research and former vice-president of the Society of Clinical Investigation. He also holds membership in the College of Physicians and Central Society of Clinical Research.

Fifth World Congress Meets in Sweden

Acclaimed a landmark in the growth of international programs for the physically handicapped, the Fifth World Congress of the International Society for the Welfare of Cripples met in Stockholm, Sweden, September 9 to 14. A total of 648 persons came from 29 nations to join in consideration of subjects related to the theme of the Congress, "Complete Services for the Disabled—A World Goal."

Seventeen persons attended the meetings from Australia, constituting the largest group to travel so great a distance. A total of 75 participants came from the United Kingdom, and a similar number from the United States were present. The Union of South Africa was represented by a delegation of ten persons. Delegates were also present from Argentina, Austria, Belgium, Brazil, Canada, Cuba, Denmark, Finland, France, Germany, Greece, India, Iceland, Israel, Italy, Kenya, Lebanon, Netherlands, Norway, New Zealand, Spain, Sweden, Switzerland, Turkey, and Venezuela.

Delegates first assembled on September 9th at a reception at the Norrbacka Institute, where informal discussion was combined with the opportunity to visit the institute, which is one of the outstanding facilities serving the disabled in Sweden. The Congress officially opened on Monday morning at a meeting in the Swedish Parliament Building with Konrad Persson, President of the Congress, presiding and delivering the opening address. Tage Erlander, the Prime Minister of Sweden, presented the greetings of the King and Queen who were patrons of the Congress, and Dr. Henry H. Kessler, who has served as President of the International Society since 1948, told the delegates that faith and service are required to bring to the handicapped everywhere the advantages of modern knowledge and technics.

Latin-American Congress of Physical Medicine Plans Fourth Convention

The Fourth Convention of the Latin-American Congress of Physical Medicine will meet in Panama City, February 24-29, 1952. Through the courtesy of the Government of Panama, the Latin-American Congress of Physical Medicine has been invited to hold its fourth congress in the capital of Panama.

During the sessions outstanding medical men, dental surgeons, and pharmaceutical chemists will deliver scientific papers pertinent to the latest developments and technics in the medical profession. Since the number attending will be limited, there will be ample opportunity to discuss and become better acquainted with problems of primary importance to the Latin-American countries. Also, arrangements have been made for trips across the Panama Isthmus, and to Costa Rica, Honduras, El Salvador, and Mexico.

Individuals desiring to participate in or attend this meeting are invited to communicate with Cassius Lopez DeVictoria, M.D., Executive Director, 176 East 71st Street, New York 21, N. Y.

(Continued from page 28)

Debates. This Area, too, is rich in History and Poor Richard adviseth the Stroller to look sharply lest he overlook such Details as the Ancient Fire Company Markers on the Buildings, or the "Busybodies" set on Windowsills so that the good Housewife might observe her Neighborhood with Dignity and Ease.

We hope this necessarily short Tour will whet the Appetite of him who takes it, for much more is there to see and tell about. Bear with your humble Writer and Poor Richard till a later Issue of this small Gazette when more and greater Wonders will unfold that you may hear the Many Things in store for the Visitor to Philadelphia.

REPRINTS AVAILABLE *(Continued from page 21)*

PHYSICAL THERAPY HOME CARE PLAN: ORANGE COUNTY (CALIFORNIA) HEALTH DEPARTMENT *Edward Lee Russell, M.D., and Helen Haiber* (5c)

THE MEASUREMENT OF JOINT MOTION—*Margaret L. Moore* (15c)

PHYSICAL THERAPY IN THE PRENATAL PROGRAM—*Gillian Griffith Smith* (5c)

ROLE OF PHYSICAL THERAPY IN CARE OF PSYCHIATRIC PATIENTS—*Lola E. Smith* (5c)

METHODS OF CLINICAL INSTRUCTION IN PHYSICAL THERAPY—*Beatrice E. Whitcomb, Capt., WMSC* (10c)

Special Materials

BIBLIOGRAPHY ON NATURAL CHILDBIRTH (10c)

READING REFERENCES FOR ELECTRICAL DIAGNOSIS AND ELECTRICAL STIMULATION (10c)

FILM LIST OF SPECIAL INTEREST TO PHYSICAL THERAPISTS AND STUDENT PHYSICAL THERAPISTS

These films may be secured on rental, loan or sale depending on the course. Unless otherwise specified, all films are believed to be 16 mm. (15c)

POLIO ISSUE OF THE *Review* (JULY 1951)—

Contains eight articles by leading physicians and physical therapists. There are thirty-one abstracts from current medical journals. (50c)

SPECIAL FUNCTIONAL ISSUE OF THE *Review* (NOVEMBER 1949)—

Contains eight articles by leading physicians and physical therapists on functional training, crutch walking and wheel chairs. There are twenty-six abstracts of articles on functional training from current medical journals. (50c)

PHYSICAL THERAPY IN THE HOME—*Arthur L. Watkins, M.D.* (5c)

PHYSICAL THERAPY IN STATE CRIPPLED CHILDREN'S PROGRAM—*Clara M. Arrington* (5c)

THE USE OF LEAD-UP FUNCTIONAL EXERCISES TO SUPPLEMENT MAT WORK—*Morton Hoberman, M.D., Erbert F. Cicenia, Hyman L. Dervitz and Oscar C. Sampson* (10c)

ADJUSTABLE, COLLAPSIBLE PARALLEL BARS—*Helen C. Coburn and Margaret Hukill* (5c)

THE REHABILITATION OF APHASICS—*Dorothy Britton* (10c)

PHYSIOLOGY OF THE HEART AND CIRCULATION AND ITS CLINICAL APPLICATION IN PHYSICAL MEDICINE—

A bound edition of the papers presented in a symposium at the 1950 annual conference of the American Physical Therapy Association with introduction by Harry D. Bouman, M.D., Coordinator. ($1.00)

ESSENTIALS OF A HOSPITAL DEPARTMENT—PHYSICAL THERAPY—

This manual is designed to supply broad guidance in planning, installing, equipping and administering a physical therapy department in a hospital. Compiled by experts in many fields and published by the American Hospital Association. ($1.00)

PLAN AND SPECIFICATIONS FOR AN ALL-WELDED STEEL TREATMENT POOL (No charge)

ORGANIZATIONAL GUIDE FOR SCHOOLS OF PHYSICAL THERAPY—

Gives a broad interpretation of the essentials of a physical therapy school as established by the Council on Medical Education and Hospitals of the American Medical Association. (No charge)

All requests should be addressed to American Physical Therapy Association, 1790 Broadway, New York 19, N. Y.

Abstracts

Epidemic Poliomyelitis: Review of Five Hundred Twenty-Six Cases

Maurice Lenarsky, M.D., Robert L. Parr, M.D., and H. Eugene Seanor, M.D., New York. In AMERICAN JOURNAL OF DISEASES OF CHILDREN, 82:2:160, August 1951.

The significant clinical and pathological findings in 526 cases of poliomyelitis are presented and discussed.

With the exception of a few patients, notably adults, muscle pain was not a predominating feature in this series. It may be that the early institution of moist heat served to minimize this complaint.

Relief of muscle tightness and pain was accomplished satisfactorily by the application of hot packs—the "lay-on" type applied to the patient in the prone position and occasionally the Kenny "wrap-around" packs. Warm baths were used early for small children.

An attempt was made to evaluate clinically certain drugs that have been advocated for the relief of muscle spasm and pain. Priscoline (2-benzyl-2-imidazoline hydrochloride), a sympathiocolytic drug, was administered orally to 68 patients in the dosage used and recommended by Smith. It was our feeling that most of the patients were not benefited by its use. It did have a relaxing and analgesic effect in some patients, but this was not consistent or sustained, and when administration of the drug was stopped, tightness recurred. In other patients it was thought that the muscle tightness was increased by the drug, and the return to hot packing gave quick relief. There were uncomfortable side effects such as nausea and vomiting, and since the drug must be continued for long periods, its potentiality for more serious reaction was always present. In general, the physical therapy staff preferred the hot packs, and we had sufficient personnel to carry out such procedures.

The importance of early bed rest and the avoidance of fatigue as therapeutic and preventive measures in poliomyelitis have been stressed. Ressel has shown that there is a close correlation between the extent of muscle weakness and continued physical activity after the onset of the symptoms. Hargreaves and Horstmann have confirmed this. Transportation of the acutely ill poliomyelitis patient over long distances may contribute to fatigue and may in itself be hazardous. This is especially true of the bulbar poliomyelitis patient, for whom there is the danger of emergency situations that cannot be adequately handled en route because of lack of equipment and trained personnel.

Rehabilitation of the Quadriceps

By the Committee on Trauma, American College of Surgeons. In THE JOURNAL OF THE KANSAS MEDICAL SOCIETY, 52:9:434, September 1951.

Great strides have been made in the technics of the definitive treatment of trauma in the early stage, but in order to be effective the same must hold true of the convalescent stage.

Rehabilitation does not require elaborate equipment in a large clinic. It does not mean hours of passive participation under a lamp or diathermy or days of nonproductive, monotonous exercises. True rehabilitation begins at the bedside or in the clinic or office where the surgeon first directs his treatment toward the early functional restoration of the injured part. Sometimes it may mean the reassurance that an injury or illness is not serious and no special treatment is required. For example, often painstaking instruction is necessary by the surgeon in the proper use of cane or crutches. Where the ancillary services of physical and occupational therapy are available, they are invaluable aids to attaining physical restoration if optimal use is made of them. To assure the best results they must be started early.

Excellent work is being done by the limited number of rehabilitation facilities available at present, and by earlier referral they could be helped even more in returning the patient to employment sooner.

Any illness or operation which confines a patient to bed leads to rapid atrophy, loss of tone, or deconditioning of the quadriceps. A few brief periods of daily exercise or reconditioning prevent this atrophy and provide a valuable safeguard. Exercises which are productive or competitive are more interesting, but the patient soon grasps the importance of these less interesting static "muscle setting" or active exercises. At the same time other muscles must participate and benefit by the exercises. Finally, the benefit to circulation and general nutrition should not be underestimated.

Reeducation and redevelopment of the quadriceps are the single most important part of rehabilitation after injury or surgery. Quadriceps training requires no special apparatus or skill. However, there are a few essential details:

The attending physician must bring rehabilitation to the bedside. He must be aware of its importance and be willing to devote a minute or two during his daily visit to the instruction of the patent.

The patient should be told that *he alone* can exercise his muscles. Massage or mechanical devices cannot develop strength. The impulse starts in his brain and follows the nerve pathway to the muscles. Strength is attained only by active exercise. Periods of instruction or clinic treatment are only training for the work the *patient* must perform between visits.

Factors limiting the intensity of exercise are essentially pain and fatigue. The patient seldom exercises beyond the limit of either, and he may safely exercise if he experiences neither excessive pain nor fatigue.

The knee should be in extension during most of the time while at rest. Especially after trauma or surgery involving the knee is this important.

Exercise should be started as soon as possible after the patient is confined to bed and within twenty-four hours after surgery or trauma.

Exercises may be classified as (a) static, (b) passive, (c) assistive, (d) active, and (3) resistive.

Exercises are progressive in this order: static, active and resistive.

Exercises to be effective must be strong, intermittent, and interrupted by a brief period of relaxation so that the muscle may recover by receiving nutrition and oxygen, and by eliminating waste products. A muscle held in a prolonged state of contraction tends to fatigue and atrophy. While repeated exercises develop endurance, strength is developed by a few exercises daily with the maximum weight which can be lifted effectively.

In walking, with or without crutches, the knee should not be held stiffly in extension or the muscle will fatigue and atrophy. Walking with a passive pendulum motion at the knee does not develop muscle strength. As the leg is moved for-

ward the knee should flex slightly in order to relax the quadriceps. As the heel strikes the ground the quadriceps should contract in order to extend the knee fully and give the individual a secure gait.

Combined Use of Cortisone, ACTH and Rehabilitation Techniques in Certain Arthritis Problems

James A. Coss, Jr., M.D., and Charles A. Ragan, M.D., New York, N. Y. In ARCHIVES OF PHYSICAL MEDICINE, 32:9:572, September 1951.

It is estimated that approximately 7,000,000 persons in the United States have some form of rheumatic disease. Rheumatism and arthritis rank second among diseases producing disability and invalidism. For many years the combined efforts of physicians interested in surgery, internal, and physical medicine failed to achieve more than moderate success in combatting the most severe of these illnesses, rheumatoid arthritis. In September 1948, Doctor Hench made his first clinical tests with ACTH (adreno corticotropic hormone) and with an adrenal cortical preparation labeled Compound E by Doctor Kendall. The dramatic results reported by him in the rheumatic diseases have been widely confirmed. This is the first available drug which reverses the symptoms of arthritis rapidly and unmistakably.

However, Compound E, or cortisone as it is now known, cannot rebuild bone nor can it overcome faults in gait or long standing deformities which have resulted from sparing a painful joint or tendon, or voluntarily limiting motion for a long time. This realization, which is obvious to anyone interested in physical medicine or in rheumatic disease, has led to isolated expressions of dismay that cortisone is good only in the treatment of early arthritis.

In the past, physical therapy was bound by the precept that exercise must be kept within limits of pain and fatigue. Whenever these rules were ignored the patient has paid the penalty subsequently with an increase in pain, deformity or contracture the day after such excess treatment. With the advent of cortisone therapy, however, the problem of proper ancillary care tended to solve itself as far as early and mild cases were concerned. The patients with minor contractures and voluntary muscle splinting due to pain lost their pain and contractures so quickly that physical therapy was needed only to assist in restoration of full range of motion and in rebuilding of atrophic muscle. This was done without deviation from known and accepted technics of physical therapy. Using ACTH or cortisone and physical measures together it is possible to rehabilitate severely handicapped people who would not be helped by either measure alone.

The use of drugs and inpatient physical therapy is only a beginning in treatment and must be supplemented with supervised rehabilitation technics to maintain the progress initially made.

Chronic Empyema

T. Holmes Sellors, London, and Gordon Cruickshank, Leicester. In THE BRITISH JOURNAL OF SURGERY, 38:152:411, April 1951.

The principles of treatment of chronic empyema are three: (1) Elimination of toxic contents. (2) Closure of the cavity. (3) Restoration of lung function.

Prophylaxis by correct handling of the acute phase is the obvious basis for treatment and this can be best expressed by continued and adequate drainage coupled with intensive physical therapy. A motley variety of drainage and irrigation methods has been advocated from time to time, but these cannot replace the more simple and effective principles just laid down. A chronic empyema once diagnosed must be correctly drained and this drainage constantly supervised until complete healing has occurred, and with this surgical treatment vigorous physical therapy perseveringly pursued. On occasions it is justifiable to consider complete excision of the empyema with its walls and contents, and so remove a harmful dead space, leaving the lung free from constricting scar tissue, but this is a major operation and requires all the services of a fully equipped thoracic surgical unit.

Respiratory physical therapy deserves special mention since it is only carried out with full effect in chest units. The requisite exercises aim at localized and forceful inspiratory efforts with the patient concentrating on moving the area of the empyema. Persistence and encouragement will result in the expansion of an immobile section of chest wall. The lung will follow this movement and help to obliterate the empyema cavity. These objects are easily achieved, and daily, even hourly, practice is essential. Ten to twenty minute exercises every waking hour produce results that cannot be obtained in any other way. In an extensive, rigid, chronic empyema a period of months may be required, and in one case success was reached only after a year and a half. The traditional measures of blowing up balloons and the like can be discarded, as they are expiratory in character and not inspiratory. Full postural and general exercises also should be used and the problem is simplified if the patients can be ambulatory for the greater part of the day and can take active physical exercise. For this reason the ordinary conditions pertaining to a general hospital are not ideal for the treatment of chronic empyemata.

Effect of Rapid and Prolonged Rewarming on Local Cold Injury

Josef Pichotka, M.D., and Robert B. Lewis, Lieutenant Colonel, U.S.A.F. (M.C.), Randolph Air Force Base, Tex. In UNITED STATES ARMED FORCES MEDICAL JOURNAL, 2:9: 1293, September 1951.

The rate of rewarming a frozen limb has a decisive influence upon the clinical result. The general belief is that slow rewarming is most beneficial and that direct application of heat to a frozen area is injurious and therefore should be avoided. This assumption is based upon popular observations that with slow rewarming alarming clinical signs and symptoms, such as marked swelling and severe pain, can best be avoided. However, these observations are uncontrolled, and many of the examples quoted to indicate the danger of rapid rewarming are open to question. In recent years several articles have been published showing that rapid rewarming of frozen parts was not harmful but even beneficial. The most important among these are those of Fuhrman and Crismon and of Finneran and Schumacker. These authors showed that rapid rewarming definitely decreased the tissue loss after a standard cold injury. The experiments of Pichotka and Lewis were performed in order to repeat the previous investigations with a method of cold injury which permitted a more exact measurement of the results. They hoped, at the same

time, that some insight might be gained which would result in a more clearly differentiating effect of rapid rewarming on frostbitten tissue.

These studies showed that rapid thawing of frozen legs in water at 42 C. for five to eight minutes almost entirely prevented cutaneous necrosis after exposure to −12 and −15 C. for thirty minutes. Spontaneous rewarming in air at room temperature after these two standard injuries, in these and previous experiments, resulted in superficial necrosis in 20 and 90 per cent of the cases, respectively. The extent of muscular necrosis was definitely decreased by the rapid thawing, but the results were not so striking as in the case of cutaneous necrosis. Prolonged rewarming with water at 40 C. up to one hour gave in all cases the same beneficial influence as rapid thawing for only five to eight minutes. Animals with rapidly rewarmed legs exhibited a better general appearance than animals left to spontaneous rewarming and preserved better function of the injured limbs.

New Developments in Industrial Surgery

Harry E. Mock, Jr., M.D., F.A.C.S., Chicago, Ill. In INDUSTRIAL MEDICINE AND SURGERY, 20:9:385, September 1951.

Early ambulation of surgical patients was slow in being accepted by the medical profession. It made the greatest gains during World War II, although it had been used by some physicians for years before the war. As we look back now it is hard to understand why we were so hesitant to adopt it. We were thinking of an injured part or parts rather than of the patient's body as a whole. If the patient gets up as soon after injury or surgery as possible, the body tissues do not have time to lose their tone, the long convalescence from bed rest is avoided, and the incidence of postoperative or "post-traumatic" complications is greatly diminished. If it is impossible to get the patient up, similar benefits can be derived from special exercises given in bed.

A surgeon's responsibility is not over when the traumatic or operative wound is healed. His treatment must continue until the patient has made maximum improvement and can return to work. Physical and psychological rehabilitation are essential. There has been a gradually increasing recognition of this fact since World War I when physical therapy and occupational therapy were born. We all know the long road physical medicine has had to travel, from the days of therapeutic lamps and diathermy machines in individual physicians' offices, to our modern rehabilitation centers where patients are given massage and carefully supervised exercise, and are imbued with the desire to help themselves. Industrial surgery has been the leader in the field of rehabilitation.

The great development in industrial surgery is shown by the fact that today the majority of workmen are receiving all the advantages of the advancements in general surgery.

Fractures of the Upper End of the Humerus

John A. Powers, M.D., Charlotte, N. C. In SOUTHERN MEDICINE AND SURGERY, 113:7:225, July 1951.

In considering fractures of the upper end of the humerus, the author has included those which occur at or above the insertion of the latissimus dorsi and the teres major. These fractures have logically been classified according to age.

Humeral fractures assume their greatest importance when they occur in children. Injuries to the epiphyseal plate result in growth changes and positional deformities of the humeral head.

In adults the treatment of complete fractures of the surgical neck is similar to that in children. However, fractures with adduction of the proximal fragment are about as frequent as those with abduction, the type depending on how the extremity is held when the patient falls. These are treated by immobilization with the arm at the side, as in a Velpeau bandage.

In the older patient, where early ambulation and a functioning shoulder outweigh the advantages of an anatomical reduction, treatment is by necessity limited. The arm is placed in a sling or a Velpeau dressing for a minimal period, usually fourteen to twenty-one days, and then active shoulder motion is instituted.

Probably no group of fractures demands a more vigorous program of physical therapy than those of the proximal humerus, particularly in the aged. The desire to prevent soft tissue contractures with resultant limitation of motion should remain paramount in the mind of the surgeon. To this end he might sacrifice accurate X-ray repositioning and the freedom from pain that goes with prolonged immobilization.

Value of the Pylon in the Pre-Prosthetic Management of the Lower Extremity Amputee

Leslie Blau, M.D., Joseph J. Phillips, B.S., Wadsworth, Kansas, and David L. Rose, M.D., Kansas City, Kansas. In ARCHIVES OF PHYSICAL MEDICINE, 32:9:585, September 1951.

The word "pylon" stems from the Greek word meaning gateway. The use of this word in medicine to signify a temporary prosthesis for the lower extremity amputee seems a happy one, not only in the sense of support, but also as the gateway to a new world where the amputee is to live normally, despite the loss of one or both legs.

The chief criticism concerning the use of the pylon in the preprosthetic training of the lower extremity amputee is the belief that its use will result in an unnatural gait characterized by circumduction of the stump, an absence of motion at the knee, and an abnormal movement pattern in general. Other objections have been unsightliness, an undesirable shaping of the stump by the use of the pylon, and the heavy weight of the temporary prosthesis. However, the authors believe that the pylon has unique merits which are not fully realized by physiatrists and orthopedists.

The pylon was used on thirty-one consecutive amputees while they awaited their permanent prostheses. Their pre-prosthesis training program was as follows: Soon after amputation, while the patients still are confined to bed, they receive rehabilitation exercises to the unaffected extremities to maintain strength of the musculature and joint mobility, and therapeutic exercises to the stump and hip girdle in the form of active thigh extension and adduction. Later, balance exercises and training in crutch walking are given. Whirlpool treatments are administered when required for wound healing and for improving the texture of the skin. Alcohol massage and pounding, which have been reported of value in toughening the stump, have been completely omitted.

When the incision is healed the pylon is fitted and whirlpool therapy is discontinued in order not to interfere with the toughening effect of the pylon. The stumps are bandaged in the usual way until the patients are supplied with their temporary prostheses. The routine management of these cases was not altered except in the bilateral above knee amputee, for whom the pylons were gradually increased in height to facilitate standing balance.

No unfavorable consequence was occasioned by the use of a pylon. The abduction gait, bulbous, sensitive stump, and poor pattern of locomotion emphasized in the literature were never encountered. The pylon is acceptable psychologically to the patient, is durable, easily fabricated, and cheap in initial construction. Also, replacement of the pylon bucket and lining is cheaper and simpler than similar changes in the permanent prosthesis.

Since most of the stump shrinkage occurs while the pylon is worn, its use should not be terminated too soon.

Using the pylon enables the patient to return to gainful work while awaiting the permanent prosthesis, and this is not always possible with the use of crutches alone.

Sex and Age Differences in the Mechanical Ability of Physical Therapy Matriculants

F. A. Hellebrandt, M.D., Sara Jane Houtz, M.S., and Thelma Pedersen, M.A., Richmond, Va. In ARCHIVES OF PHYSICAL MEDICINE, 32:9:567 September, 1951.

Between 1947 and 1950 the MacQuarrie Test of Mechanical Ability was administered to 192 matriculants of four widely separated physical therapy schools. Analysis of the *total scores* obtained on this extensively used test indicated that the mechanical ability of physical therapy matriculants is higher than that of the population used for the establishment of the adult norm applicable to both men and women, and that, although sex and age differences occur, the magnitude of these differences is too small to be significant statistically. The mean MacQuarrie score of men was slightly higher than that of women, and that of younger matriculants exceeded the average of students aged 30 or older. The handicap of age affects spatial visualization more than manual dexterity.

The mean mechanical ability of men is somewhat superior to that of women when the scores of both are compared with the same norm. Women physical therapy matriculants appear to be considerably superior to men when the MacQuarrie scores of each are compard with norms established for their respective sexes.

The evidence accumulated from this suggests that both sex and age should be considered in the selection of applicants for admission to physical therapy schools.

Needs of the Army in Physical Medicine

E. M. Smith, Colonel, M.C., Takoma Park, Md. In ARCHIVES OF PHYSICAL MEDICINE, 32:9:590, September 1951.

The term "need" presents many facets. In the military service it frequently is expressed as requirements. This paper discusses requirements as to the total personnel needed for the Physical Medicine Service, as an ideal requirement, and the minimal requirements of the service.

Two factors are quite pertinent; these are the quantity of those available and the quality of those available. There is a shortage of trained personnel in all categories of the physical medicine program, both military and civilian.

During the past war the accomplishment of physical medicine in caring for the health of the disabled and handicapped, wounded on the battlefield or elsewhere, have been acclaimed worthy of high praise. The position of physical medicine might deteriorate unless our special skills be increased or held to a high level. Certainly the past performance has been for the good of the patient. Our intent is even better care for the sick and injured. We, in physical medicine, can gain popularity not by the numbers to which we apply it, but by the end result of improving the lot of that number. We rise or fall by application of efforts directed toward relief of the sick and wounded; the prevention of deformity; the correcting of disabilities or the improvement of those already disabled.

There is a real need for more people to enter the field of physical medicine for training on a long range plan, and one may also add that there certainly is a need, and an acute one, for accelerated programs of physical therapy.

A Foot By-Pass Apparatus for Treating Fractures of the Femur

August W. Spittler, Colonel, M.C., U.S.A., and John J. Brennan, Lieutenant Colonel, M.C., U.S.A. In UNITED STATES ARMED FORCES MEDICAL JOURNAL, 2:9:1389, September 1951.

This article describes an apparatus to improve the treatment of fractures of the femoral shaft with skeletal traction. It is accomplished by the use of a metal ring placed in the line of traction over the foot. This causes the traction to by-pass the foot.

Early institution of knee movement by conversion of the Pearson attachment to an exerciser is facilitated by the use of the metal ring by-pass of the foot. It helps to prevent ankylosis of the knee. The patient is able to extend the knee completely with full clearance for the foot at any time. Using full extension of the knee as the resting position in the intervals between the exercise periods also is facilitated by the use of the ring. Conventional positional foot splints to prevent equinus contracture readily can be used with the metal ring.

Studies in Disorders of Muscle: IV: The Clinical Manifestations and Inheritance of Childhood Progressive Muscular Dystrophy

Frank H. Tyler, M.D., and F. E. Stephens, Ph.D., Salt Lake City, Utah. In ANNALS OF INTERNAL MEDICINE, 35:1:169, July 1951.

This is a study of 33 kindreds. In these families, 61 patients were found with childhood progressive muscular dystrophy. All living members of these kindreds thought to have neuromuscular disorders have been examined, as have the parents of the patients, their siblings and certain other genetically related individuals, even though these relatives were reported to be normal.

The clinical course of the majority of these patients was consistent. Typically, after the onset in early childhood, they walked with slowly increasing difficulty until they were nine or twelve years of age, when they became confined to a wheelchair because of inability to walk without support. In addition to the muscular weakness, they developed contractures in the Achilles, hamstring, and biceps tendons which

contributed to their disability. The contractures were in some degree postponed by persistent activity and/or physical therapy. Without the most persistent care, the boys became progressively deformed once they were unable to walk, until grotesque deformities took place in the positions they elected or used because of weakness.

The large pelvic girdle muscles were the first involved in a process which spreads centrifugally in an insidious fashion to produce extreme muscular disability. Most of the patients are severely disabled in adolescence and die then or in early adult life. None of these patients has had children.

Thoracic Injuries in World War II: Part II: Therapy in the Reconstructive Phase

Joseph P. O'Connor, Commander, M.C., U.S.N.R., Pasadena, Calif. In UNITED STATES ARMED FORCES MEDICAL JOURNAL, 2:9:1277, September 1951.

Three hundred and nine patients requiring late and definitive treatment because of traumatic lesions of the chest wall and lungs were studied. The usual postoperative procedures necessary for patients with thoracic injury were followed for the first 24 to 36 hours, after which early ambulation was encouraged and exercises were started. Even patients too obviously ill to be out of bed for weeks were put through organized exercises supervised by the athletic instructors of the physical education and rehabilitation department, together with the physical therapists. As soon as the patient could sit up in bed and subsequently became ambulatory his exercises were increased to the point of tolerance under instruction.

In all cases of hemothorax and in other wounds of the thorax, atrophy of the pectoral and other muscles of the rib cage was a common finding. In some, the atrophy was striking, the patient presenting on admission a visible deformity in just a few weeks after injury. Therefore, an important part of the immediate treatment became the exercises. The instructors and physical therapists stepped up the tempo of the physical activity as the clinical condition permitted, to the extent that such strenuous games as volleyball, basketball, and tennis became part of the treatment.

Many a young, frightened, and ill patient was admitted with a large hemothorax and one-half of his chest immobilized and apparently "stove-in," only to undergo thoracentesis once or twice and begin immediately with a regimen of exercises, and suddenly change into a robust lad on the road to recovery. The reason for this is just as obscure as that for the cases of total hemothorax which cleared without aspiration.

Comparative Morbidity of Early and Late Ambulation

Eugene Todd, Jr., M.D., and Francis M. Massie, M.D., Lexington, Ky. In THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION, 49:9:401, September 1951.

"Early ambulation" means getting the patient out of bed and walking, not sitting, as soon as practicable. To be effective it must be worked at by both the patient, the physician, and especially the nursing staff in charge—and it must mean walking.

A comparison has been made of the morbidity rate of patients before and after the introduction of early ambulation as part of their postoperative treatment.

A study of the major postoperative complications both by age groups and by operative procedures done has been presented. The study was made from 1727 consecutive private patients who had had major abdominal, radical breast, or goiter operations. Patients less than 20 years of age were omitted from the study.

Todd and Massie reached the following conclusions:

Thrombophlebitis has not been reduced by the use of early ambulation.

Pulmonary complications are reduced to a gratifying extent by the use of early ambulation.

Cystitis has been reduced by about one-half.

The incidence of wound dehiscense showed no change between the control and the ambulatory group.

The incidence of generalized peritonitis is little changed by ambulation and the reduction of 0.28 per cent in this study probably can be accounted for by the use of antibiotics in those cases in which it was feared preoperative or operative contamination had occurred.

The total morbidity has been reduced by 5.4 per cent which is certainly significant. Most of this is accounted for in the reduction of pulmonary complications.

The total death rate was not signficantly changed.

The abstract, but nonetheless very important, psychological outlook of the patients treated by early ambulation is of very great value. These patients soon obtain confidence in their future welfare. They need fewer narcotics and their general discomfort does not last nearly as long. Strength is regained quickly and the hospital stay is reduced.

Diagnostic Features of Electromyography

O. Leonard Huddleston, M.D., Ph.D., Elizabeth Austin, M.D., and Alberto A. Marinacci, M.D., Los Angeles, Calif. In ARCHIVES OF PHYSICAL MEDICINE, 32:9:579, September 1951.

The diagnostic features of electromyography are limited mainly to the neuromuscular system pertaining to motion and locomotion by striated muscle. Electromyographic findings should be regarded as laboratory evidence which may be used by the physician to supplement other clinical data for the purpose of establishing a diagnosis.

In this article the minimum requirements of clinical electromyography are outlined, and the customary procedure used in making an electromyographic examination of a patient is reviewed. The usual indications for the use of electromyography clinically, and the usual causes of neuromuscular paralysis are mentioned and briefly discussed.

The customary electromyographic findings encountered in the rountine examination of patients during rest, voluntary effort, and passive motion are described and the usual significance of each is pointed out.

The electromyographic characteristics typically found in pathologic conditions of the neuromuscular system are summarized in tabular form.

Mention is made of the neuromuscular disorders in which electromyography is useful in establishing a differential diagnosis—such as a primary muscular atrophy and a primary muscular dystrophy; an abnormal synaptic block and a lower motor neuron lesion; a functional paralysis and an organic paralysis;

an upper motor neuron lesion and a lower motor neuron lesion; a backache caused by acute, or chronic postural strain and that caused by root or cord compression lesions.

The authors also point out the medicolegal importance of electromyography.

The Effects of Priscol (2-Benzyl-4, 5 Imidazoline Hydrochloride) in the Treatment of Peripheral Vascular Diseases

Nathan Frank, M.D., John A. Strazza, Jr., M.D., and James T. Helsper, M.D. In ANNALS OF INTERNAL MEDICINE, 35:1:19, July 1951.

The physiologic, pharmacologic and clinical effects of diethyl ether, histidine and ascorbic acid, vitamin E, dibenamine, tetraethyl ammonium and Priscoline have been presented in detail.

Vitamin E and histidine and ascorbic acid are felt to be relatively inert.

Diethyl ether, dibenamine and tetraethyl ammonium are shown to be fairly efficient vasodilators, but their use often is followed by severe reactions.

A report is given of the treatment with Priscoline of twenty-two patients at the Jersey City Medical Center. Of all the drugs discussed, Priscoline and intra-arterial histamine appear to be of the greatest clinical promise.

However, the treatment of peripheral vascular diseases always should be based on such time-proved methods as bed rest, intermittent venous occlusion, oscillating bed, reflex vasodilatation by the distal application of heat, local and sympathetic nerve blocks, sympathectomy, vascular exercises, foot hygiene, and so forth. Vasodilators should be used to supplement and not to replace the abovementioned measures.

Venous Obstruction in the Upper Extremity

Milburn H. Querna, M.D., Spokane, Wash. In NORTHWEST MEDICINE, 50:9:671, September 1951.

Venous obstruction occurs infrequently in the upper, as compared with the lower, extremity. It may be of more frequent occurrence than one is led to believe from reports in the literature. The disease is almost never fatal, its course is protracted and often not influenced by treatment, so perhaps this may discourage discussion.

It may occur at any age, is most frequent during the active years, most often in active males, and most frequently in the right arm. The onset is heralded by swelling and pain in most cases and may be abrupt or gradual. Often these occur first in the shoulder, then spread down the arm and upward over the pectoral region. Discoloration, most often a cyanotic hue, occasionally pink or red, is noted early. Venous distension is an early prominent finding in all cases. Paresthesia is noted in some patients. The diagnosis rarely presents difficulty. Trauma is considered the most usual inciting factor. It may have been caused by lifting a heavy weight, working with the arm overhead, forcible abduction or external rotation of the arm, or a blow on the shoulder or upper chest.

Treatment for the most part has been conservative—bed rest, elevation of the arm, and heat.

Book Reviews . . . . .

The Neuroses. *By Walter C. Alvarez, M.D., Professor of Medicine, Emeritus, Mayo Foundation, University of Minnesota; Emeritus Consultant in Medicine, the Mayo Clinic. Cloth binding. Price, $10.00. Pp. 667. W. B. Saunders Co. Philadelphia, 1951.*

This book is a digest and summary of the author's experience in the management of sick people for 45 years of medical practice. In a somewhat patronizing manner, little tricks and hints are handed down to the young physician to enable him to avoid the pitfalls that Dr. Alvarez almost or did fall into in his earlier unskilled days. The intended audience for "The Neuroses" is the general practitioner, and perhaps one of the greatest achievements is that the book is maintained on a nontechnical simple level that makes the material available to the non-psychiatrist without provoking his confusion and hostility with complicated verbiage. However, the whole theme is rather confusing to any psychiatrist who thinks in terms of organization and classification of material in a text book. Even the subtitle "the diagnosis and management of functional disorders and minor psychoses" is an indication of the contradictions, as though this constitutes the body of disease called neuroses. Actually the book is much broader and contains a great deal about organic diseases.

The general form of the book is unorthodox and presents no pattern of development but rather is a compilation of accumulated experiences in various subjects. Part I discusses the need for better recognition of the neuroses and minor psychoses, but in the section on classification and definition there is no real organization for either. Part II on diagnosis presents no real method of approaching a case but records many delightful incidents and little things to be on the watch for. We find chapters such as, hints for determining the causes of pain, the ordering or not ordering of tests, disregarding findings that have nothing to do with the case, and so on. All this is interesting, and even highly instructive in pointing out the need to be observant, but smacks of intuition and the making of snap diagnoses from chance remarks or movements; a skill in the hands of the author but a hazard in anyone who tries to imitate. The list of symptoms which may lead to a diagnosis of a psychosis is included in the list of symptoms which are supposed to give rise to a diagnosis of psychoneuroses.

The causes of neuroses and psychoses are discussed in Part III. The first sentence is an expression of the author's theme. "The main predisposing cause of neuroses and minor psychoses seems to be a hereditary and inborn tendency to get nervous, to worry, and to adjust poorly to life." In fact, throughout the book he belabors heredity as the cause of all evil, even as the cause of enuresis. This is certainly contrary to all accepted psychiatric thinking for at least 25 years. Then he amazingly quotes a "cure" of some unhappy person's neurosis by a chance remark which reassures the patient momentarily. One can't help but wonder what happens after the patient gets home and he gets anxious again. To say the least, it is superficial reassurance. The chapter on little strokes, a common cause of nervous syndromes, is a review of previously

described work and is quite valuable, as are other phases in this book which point out the relationship between functional and organic processes and how one must not assume that functional and psychogenic are synonymous. Many organic diseases are first evident by a disturbance in function, somatic or psychologic, before the picture is sufficiently well developed to recognize its organic etiology.

The last three parts of the book deal with the following general topics; namely, types of personality and several syndromes, and the psychosomatic features of the several specialties treatment. One can review these sections in detail but it would be redundant because one would have only to make the same comments as above.

Although this review seems quite critical of Dr. Alvarez' effort it is only to point out that as a book on scientific psychiatry it should be criticized. However, it has a great deal of merit in the presentation of what one can learn about people if one tries. Actually it is enjoyable reading and it instills in the reader a feeling for the patient who is sick. Most of all it makes us realize that Dr. Alvarez is a real doctor who loves his patients and his work. He symbolizes the group that is in danger of vanishing in the overwhelming onslaught of scientific medicine without a soul. It is a book which all physicians could profit from reading even though they may have personal scientific differences of opinion with the author.

Reviewed by IRVING C. SHERMAN, M.D., *Assistant Professor, Department of Nervous and Mental Diseases, Northwestern University Medical School.*

Saints, Sinners and Psychiatry. *By Camilla M. Anderson, A.B., M.D., Assistant Clinical Professor of Psychiatry, University of Utah. Hard binding. Price, $2.95. Pp. 206. J. B. Lippincott Co., East Washington Square, Philadelphia 5, Pa., 1950.*

"Saints, Sinners and Psychiatry" by Dr. Anderson is an excellent presentation of the mental mechanisms of human beings in their attempt to make an adequate adjustment in society. She demonstrates quite clearly how a failure to act realistically may weave the individual into a pattern of neurotic behavior. The book is resplendent with excellent case history examples, but they are so superficial that one is left with the impression that psychiatric treatment is simple and the patient is always cured in a short time. This is, of course, far from the whole story.

The author uses as illustrations many trite expressions such as "it burns me up" and "I am fed up with it," in order to convey the psychosomatic approach to the reader. This has been done quite often by previous authors, but as always, it fails to convey the depth of the concept of psychosomatic ills.

Dr. Anderson writes in a very simple and understandable style as she presents a rather unique, but not wholly different, approach to the study and treatment of mental illness. Her's is a kind of ego psychology which still contains the basic Freudian concepts, but the ideas are presented in a most stimulating and interesting manner.

Although the book is not an outstanding contribution to psychiatric thought, it is excellently written and should be interesting to lay persons as well as a valuable asset to those persons who in some way are called upon to understand human behavior.

Reviewed by JOSEPH ROBINSON, A.B., M.A., M.D., *Chief of Neuropsychiatry, Community Hospital, Philadelphia.*

Meet Our New Contributors

Helen M. Dobbin is Staff Physical Therapist at the Veterans Administration Hospital, Coatesville, Pa. She received her B.A. degree from the University of Pennsylvania in 1949, and the following year completed her physical therapy training at the Graduate Hospital School of Physical Therapy in Philadelphia.

In 1950 Miss Dobbin was recruited for polio epidemic service at the Jefferson Davis Hospital in Houston, Texas.

She is a member of the American Physical Therapy Association and the American Registry of Physical Therapists.

Paul R. Harrington, M.D., received his A.B. from the University of Kansas and his M.D. from the University of Kansas School of Medicine. His Pathology degree was received from Baylor School of Medicine. Dr. Harrington has had many affiliations in the field of Orthopedics. He was Associate Professor, Clinical Orthopedic Surgery, University of Kansas from 1940 to 1942; Orthopedic Surgeon with the 77th Evacuation Hospital during World War II; and since 1946 has been Associate Professor of Orthopedic Surgery at Baylor School of Medicine. He is also Orthopedic Consultant of the Southwestern Poliomyelitis Respiratory Center at Houston, Texas.

Dr. Harrington is a member of the American Medical Association, Texas State Medical Society, Harris County Medical Society, Houston Surgical Society, Southwestern Surgical Congress, and the Texas Orthopedic Association. He is also a Diplomate, Board of Orthopedic Surgery, and a member of the Polio Panel, National Foundation for Infantile Paralysis, Houston, Texas.

Eva Laughlin had her nursing preparation at General Hospital, Everett, Washington, and her physical therapy preparation at Childrens Hospital in Los Angeles.

After serving as a physical therapist in the army, Miss Laughlin was employed with a medical group in Honolulu for two years. Most recently she has been employed by the United States Public Health Service as a physical therapist at the National Leprosarium, Carville, Louisiana.

She is a member of the American Physical Therapy Association and the American Registry of Physical Therapists.

Norma V. Reynolds, Chief, Physical Therapy, Veterans Administration Center, Wadsworth, Kansas, graduated from Junior College in Kansas City. She received her professional nursing preparation at the Research Hospital, School of Nursing, Kansas City, Missouri, and enrolled at Mayo Clinic for her physical therapy training where she received her physical therapy certificate in 1942.

Miss Reynolds was Assistant Supervisor of the Physical Therapy Department of Research Hospital, and served in the United States Army as a physical therapist in World War II. She is a member of the Missouri State Nurses Association, the American Physical Therapy Association, and the American Registry of Physical Therapists.

Schools of Physical Therapy

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS
OF THE AMERICAN MEDICAL ASSOCIATION

Graduates of these schools are eligible for membership in the American Physical Therapy Association.

Name and Location of School	Medical Director and Technical Director	Entrance Requirements	Length of Course	Classes Start	Certificate, Degree, or Diploma
CALIFORNIA					
[1]**Childrens Hospital Society,** Los Angeles (in affiliation with University of California, Los Angeles)	Samuel S. Mathews, M.D. Mary J. Dodge	a[3]-b[3]-d-e g[4]	14 mo 4 yrs	Sept	Certificate Degree
[1]**College of Medical Evangelists,** Loma Linda	F. B. Moor, M.D. R. Wm. Berdan	a-b-c-d-e g	15 mo 4 yrs	Sept	Certificate Degree
[1]**Univ. of So. California,** Los Angeles	Charles L. Lowman, M.D. Charlotte W. Anderson	a-b-d-e g[4]	14 mo 4 yrs	Sept Sept-Feb	Certificate Degree & Cert.
[1]**Univ. of California Medical School,** San Francisco	Lucile M. Eising, M.D. Margery Wagner	d-e g	12 mo 4 yrs	Sept	Certificate Degree
[1]**Stanford Univ.,** Palo Alto	Wm. Northway, M.D. Lucille Daniels	a-d-e-f g[4]	12 mo 4 yrs	Jan-June or Sept	Certificate Degree
COLORADO					
[1]**Univ. of Colorado Medical Center,** Denver	Harold Dinken, M.D. Dorothy Hoag	a[3]-b-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
ILLINOIS					
Northwestern Univ. Medical School, Chicago	Emil D. W. Hauser, M.D. Gertrude Beard	a-b[3]-d-e	12 mo	Oct	Certificate
IOWA					
[1]**Univ. of Iowa,** Iowa City	W. D. Paul, M.D. Olive C. Farr	b-e	12 mo	Sept	Certificate
KANSAS					
[1]**Univ. of Kansas School of Medicine,** Kansas City	Donald L. Rose, M.D. Ruth Monteith	a-b-d-e g[4]	12 mo 4 yrs	Feb-Sept	Certificate Degree
MASSACHUSETTS					
Bouve-Boston School of Physical Education, in affiliation with Tufts College, Medford 55	Howard Moore, M.D. Constance K. Greene	g[4]	4 yrs	Sept	Degree
Simmons College, Boston	Wm. T. Green, M.D. Arthur L. Watkins, M.D. Shirley Cogland	a[3]-b-d-e g[4]	16 mo 4½ yrs	Sept	Certificate Degree
Boston Univ.-College of Physical Education for Women, Sargent, Cambridge	Kenneth Christophe, M.D. Adelaide McGarrett	a-b-d-e f-g[4]	12 mo 2 or 4 yrs	Sept	Certificate Degree
MINNESOTA					
[1]**Univ. of Minnesota,** Minneapolis	Frederic J. Kottke, M.D. Ruby Green Overmann	d-f-g[4]	2 yrs	Sept	Degree
[1]**Mayo Clinic,** Rochester	Earl C. Elkins, M.D. Darrell Hunt	a-b-c-d-e	2 yrs	Sept	Certificate
MISSOURI					
[1]**Washington Univ. School of Medicine,** St. Louis	Sedgwick Mead, M.D. Beatrice F. Schulz	f-g[4]	2 or 4 yrs	Sept	Degree
[1]**St. Louis Univ. School of Nursing,** St. Louis	A. J. Kotkis, M.D. Sr. Mary Imelda	f-g[4]	2 or 4 yrs	Jan-Sept	Degree

Name and Location of School	Medical Director and Technical Director	Entrance Requirements	Length of Course	Classes Start	Certificate, Degree, or Diploma
NEW YORK					
Albany Hospital, Albany (in affiliation with Russell Sage College, Troy)	John W. Ghormley, M.D. Catherine Graham	a-b-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
[1]**Columbia Univ.,** New York	Wm. B. Snow, M.D. Floy Pinkerton	a-b[3]-e f	12 mo 2 yrs	Sept	Certificate Degree
[1]**New York Univ., School of Education,** New York	George G. Deaver, M.D. Elizabeth C. Addoms	a[3]-b[3]-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
NORTH CAROLINA					
[1]**Duke Univ., School of Medicine,** Durham	Lenox Baker, M.D. Helen Kaiser	a[3]-b[3]-d-e	15 mo	Oct	Certificate
OHIO					
[1]**Cleveland Clinic,** Cleveland	Walter J. Zeiter, M.D. Mildred Heap	a-b-d-e	12 mo	Oct	Certificate
PENNSYLVANIA					
[1]**D. T. Watson School of Physiatrics,** Leetsdale	Jessie Wright, M.D. Kathryn Kelley	a[3]-b[3]-d-e	12 mo	Oct	Diploma
[1]**Univ. of Pa. School of Auxiliary Med. Serv.,** Division of Physical Therapy, Philadelphia	George M. Piersol, M.D. Dorothy Baethke	e g[4]	12 mo 4 yrs	Sept-Feb Sept	Certificate Cert. & Degree
TEXAS					
[1]**Hermann Hospital,** Houston	Oscar O. Selke, Jr., M.D.	a-b-d-e	12 mo	Oct	Certificate
[1]**Univ. of Texas School of Medicine,** Galveston	G. W. N. Eggers, M.D. Ruby Decker	a-b-e d	12 mo	Jan	Certificate Degree
VIRGINIA					
[1]**Med. College of Va.,** Baruch Center of Phys. Med., Richmond (in affiliation with Richmond Prof. Inst.)	Walter J. Lee, M.D. Susanne Hirt	a-b-d-e g[4]	12 mo 4 yrs	Sept	Diploma Degree
WISCONSIN					
[1]**Univ. of Wisconsin Med. School,** Madison	Harry D. Bouman, M.D. Margaret Kohli	a-b-c-e-f g[4]	12 mo 4 yrs	Sept Sept-Feb	Certificate Cert. & Degree
U. S. ARMY MEDICAL SERVICE					
(a) **Medical Field Service School,** Brooke Army Medical Center, San Antonio, Texas, and	Charles D. Shields, Lt. Col., M.C. Agnes P. Snyder, Major, WMSC	b-e	12[2]	Mar-Sept	Certificate
(b) **Fitzsimons Army Hospital,** Denver, Colorado	H. B. Luscombe, Col., M.C. Harriet S. Lee, Major, WMSC	Completion of Medical Field Service School			
(c) **Walter Reed Army Hospital,** Washington, D. C.	John H. Kuitert, Lt. Col., M.C. Brunetta Kuehlthau, Major, WMSC	Completion of Medical Field Service School			
(d) **Letterman Army Hospital,** San Francisco	Arthur E. White, Col., M.C. Emma T. Harr, Major, WMSC	Completion of Medical Field Service School			

Entrance Requirements

FOR ONE YEAR COURSE

a = Graduation from accredited school of nursing.
b = Baccalaureate degree with major in physical education.
c = Two years of college with science courses.
d = Three years of college with science courses.
e = Baccalaureate degree with required science courses.

FOR TWO-YEAR COURSE

f = Two years of college with science courses.

FOR FOUR-YEAR COURSE

g = High school graduation.

Footnotes

[1]Male students admitted.

[2]12 months' course includes training at the Medical Field Service School and Fitzsimons, Walter Reed, or Letterman Army Hospitals. Apply directly to the Surgeon General, Department of the Army, Washington 25, D. C.

[3]Additional college science credits required.

[4]Advanced standing students accepted.

Please address initial correspondence to the School of Physical Therapy in the institutions listed. Tuition and fees will vary from school to school.

Classified WANT-ADS

The Edith Hartwell Clinic of Strong Memorial Hospital, University of Rochester, located at LeRoy, New York has a position available for a staff physical therapist, who is interested in a program for study and research in the treatment of children with neuromuscular disabilities. Previous training and/or experience in this specialty is not required. Write Mrs. Kathleen Wingate, Superintendent, Edith Hartwell Clinic, LeRoy, New York.

WANTED: Physical therapist in general hospital, 187 beds. Sewickley Valley Hospital, Sewickley, Pa.

WANTED: Qualified physical therapist. Will pay travel expenses to interview likely candidates. Salary open. Write C. Warner Litten, Business Manager, Fargo Clinic, Box 1388, Fargo, North Dakota.

WANTED: Qualified physical therapist (woman) for Cerebral Palsy Treatment Center. Good Salary, complete charge of program. Write Mrs. George L. Fisk, Exec. Sec., Lycoming Co. Crippled Children's Soc., 620 W. 4th St., Williamsport, Pa.

WANTED: Female physical therapist, Assistant. Fully equipped department, 275-bed hospital. Please write giving age, qualifications, picture and date available. Lima Memorial Hospital, Lima, Ohio.

WANTED: Physical therapist to supervise department in 400-bed approved general hospital. Modern equipment, forty-hour week, excellent working conditions. Good beginning salary, maintenance available if desired. Apply Personnel Director; The Christ Hospital, Mt. Auburn, Cincinnati, Ohio.

WANTED: January 1st, 1952, two physical therapists. Preference given to graduates of approved schools of physical therapy. Agency program offers service to crippled children under medical prescription, to patients in the clinic, includes care of cerebral palsy, post-poliomyelitis patients and other crippling conditions. Five-day week, liberal holidays, vacation given and sick-leave allowance. Write to R. G. Forbes, Personnel Director, The Court House, Arlington, Virginia.

WANTED: Qualified physical therapist (female) to take charge and work in the department in a 300-bed general hospital. Apply, Administrator, St. John's Hospital, Anderson, Indiana.

HOSPITAL in the Midwest is in need of a qualified physical therapist, preferably one who has had training in cerebral palsy patient care. Excellent salary. Living quarters are available in the nurses' home. Two weeks vacation, 15 days sick leave and six national holidays are given annually. Write Anthony S. Dickens, Springfield City Hospital, East High St., and Burnet Road, Springfield, Ohio.

WANTED: Two qualified physical therapists for day school. Experience with cerebral palsied children preferred. Medical supervision. Good Salary. Liberal personnel policy. The Cerebral Palsy School, 1815 Ponce de Leon Ave., N.E., Atlanta, Ga.

IMMEDIATE OPENING: Staff Physical Therapist for 43-bed residence school for cerebral palsied children aged 5-12. Good salary; paid vacations. Superintendent: Miss Robertine St. James. Write Miss Shirley Francis, Head, Physical Therapy Department, Moody State School for Cerebral Palsied Children, Box 420, Galveston, Texas.

RATES

The rate per insertion is 75c per line. Typewrite your advertisement carefully and count 50 characters and spaces per line.

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